Expanding Rumination.

An Investigation into the Contributors to and Emotional and Interpersonal Consequences of Ruminative Thought

---

A thesis submitted for the degree of

Doctor of Philosophy in Psychology

at the University of Canterbury, Christchurch

New Zealand

By Johannah Erna Marie Betman

University of Canterbury

October 2012

Abstract

The primary objective of this thesis was to investigate the broader consequences of rumination. This entailed exploring the emotional and interpersonal outcomes of rumination at both an individual and dyadic level. A secondary objective was to investigate the unique contribution of attachment to rumination, and the contributing influence of context, with rumination in the confines of a romantic relationship specifically explored. It is proposed that insecure attachment may be both associated with an increased engagement in rumination and a greater likelihood of negative consequences as the result of ruminating. It is also proposed that rumination will not only have consequences for the individual, but that it will also have consequences for their romantic partner.

Studies 1 and 2 explored the broader consequences of rumination, and the contribution of attachment, for the individual who is ruminating. Both studies involved student samples. Self-report data from Study 1 confirmed rumination was significantly correlated with depressive symptoms, depressive mood and the negative emotions of shame, guilt and anger. Rumination was also significantly correlated with insecure attachment. Together, rumination and insecure attachment were found to have a unique additive effect on the experience of depressive symptoms, shame and guilt. For depressive mood and anger, insecure attachment was found to moderate the effect of rumination. In Study 2 the relationship among rumination, attachment, negative emotion and interpersonal feelings was investigated experimentally. The contribution of context was also explored with individuals asked to either ruminate or distract after thinking about a negative relationship event. Correlational analyses indicated rumination was significantly associated with

greater levels of negative emotion and relationship conflict, and lower levels of relationship depth and support. Experimental results confirmed ruminating on a negative relationship event resulted in lower levels of overall mood than distracting. Ruminating on a negative relationship event (as compared to distracting) did not result in lower levels of relationship satisfaction or relationship closeness, or greater negative feelings about the relationship. Neither anxious-ambivalent nor avoidant attachment significantly contributed to the experience of negative emotion or negative interpersonal feelings when ruminating (versus distracting) on a negative or typical relationship event.

Studies 3 and 4 explored the broader consequences of rumination for both the individual and their romantic partner. Study 3 involved a student sample, while Study 4 involved a community sample of adults. All couples were in a heterosexual relationship. Structural Equation Modelling confirmed the presence of emotional and interpersonal consequences of rumination for both samples of individuals. In regards to the consequences of rumination for one's partner, results for the student sample indicated rumination in males was associated with greater levels of negative emotion but also lower levels of conflict in their partner. Rumination in females was associated with greater negative emotion in the relationship and greater levels of conflict for their partner. For the community sample, rumination in males was associated with greater relationship satisfaction for their partner.

Study 5 also explored rumination in the context of a romantic relationship. It did this by investigating the emotional and interpersonal consequences of verbally ruminating with a partner (referred to as co-rumination; Rose, 2002). A within-subjects experimental design was utilised where couples were asked to both co-ruminate, and to reflect together on a negative and a positive relationship event. Results indicated co-ruminating on a negative

event resulted in greater relationship closeness and perceptions of support. Results also suggested that females felt they were giving more support to their partner while co-ruminating, while males felt they were giving more support while co-reflecting. No significant effect of co-rumination on emotion was noted.

Overall, the current thesis has extended the literature by providing evidence that rumination has several broader consequences beyond its established relationship with depression. Specifically, it has been shown here that rumination not only affects an individual's emotions but that it also influences their interpersonal feelings. A deeper understanding of the complexities of rumination has also been provided with results highlighting the importance of the content of ruminative thought and the internalised nature of rumination. In regards to contributors to rumination, results have increased our understanding of the role of insecure attachment in contributing to the tendency to ruminate and to the relationship between rumination, emotion and interpersonal feelings. Results have also highlighted the importance of context with rumination associated with emotional and interpersonal consequences both for the individual who is ruminating and for their romantic partner. The implications of these findings and directions for future research are discussed in depth throughout this thesis.

For all those who have participated in this thesis.

This research would not have been possible without you.

Acknowledgements

I am immensely thankful to my supervisors Dr Janet Carter and Dr Kumari Fernando for their expertise and support. This has been a challenging journey at times and I have been grateful that you have both been there for me at every step. Without your guidance and perseverance (especially in regards to helping me navigate the world of academic writing) this work would not have been possible. Thank you. I would also like to thank Professor Garth Fletcher. Your knowledge, support, and your understanding of statistics have been valued and much appreciated.

Many thanks also to Associate Professor David Gleaves for your help in assisting me in understanding how to analyse couples data, and to Felicity, Rachel and Ashleigh for your assistance with data collection and coding. Thank you also to Barbara and Marie in the psychology office who have helped out with room bookings and always had an ear to listen.

Lastly, a big thank you many times over to my family, friends and work colleagues. You are all utterly amazing! Special thanks to Mum and Dad, Cecilia, Courtney, Lana, Linda, Louise, Michelle, Chris, and everyone at Kawai Clinic. Your unwavering positivity has been inspiring.

Table of Contents

List of Tables

List of Figures

List of Appendices

Chapter 1

Introduction and Literature Review

With a large array of feeling states, defining emotion can be difficult. Researchers, however, agree emotions can broadly be described as multifaceted phenomenon that 1) occur when people interact with their environment, 2) can interrupt and force themselves into consciousness at any time, and 3) and can affect physiology, behaviour and subjective experience (Gross, 1999; Gross & Thompson, 2007; Kring & Werner, 2004). Additionally, emotions can be mild or intense, fleeting or long lasting, simple or complex (Gross & Thompson, 2007).

From an evolutionary point of view, emotions are adaptive. They prepare the body to respond quickly to danger. They also help facilitate positive social interactions, which are crucial for the goals of mate selection and community building (Gross, 1999; Shiota, Campos, Keltner, & Hertenstein, 2004). Emotions do this by guiding behaviour (we do more of what feels good, and less of what feels bad), and by providing clues as to what is, and what is not, acceptable in social situations (e.g. positive behaviour is rewarded with a smile, while unacceptable behaviour is discouraged with a frown; Gross, 1999; Kring & Werner, 2004; Magai & Passman, 1997; Shiota et al., 2004). Emotions also assist in the maintenance of close bonds, with feelings such as love and happiness bringing individuals together (Gross, 1999; Kring & Werner, 2004). While emotions can be adaptive, if they occur at the wrong time or at the wrong intensity, they can also have maladaptive consequences (Gross & Thompson, 2007). As evidence of this, Thoits (1985) noted 85% of psychological disorders were characterised by some form of emotional difficulty. It is therefore clear that being able to effectively manage emotion is an essential skill.

Emotion Regulation

Gross and Thompson (2007) define emotion regulation as the strategies that direct which emotions are felt, and when and how an emotion is expressed. In making these decisions, Gross and Thompson (2007) note an individual's goals for a given situation will determine whether they choose to dampen, intensify or maintain their current emotions. For example, if the aim is to build a stronger relationship, an individual may choose to dampen frustration. On the other hand, if the aim is to beat a friend at a race an individual may chose to intensify frustration. Intrinsic and extrinsic processes that influence decisions around when and how an emotion is expressed, have been identified. Intrinsic processes are the internal strategies an individual uses to regulate their own emotion. Extrinsic processes are the external factors that affect emotion regulation, for example, the influences of social supports or circumstances (Gross & Thompson, 2007; Kring & Werner, 2004; Magai & Passman, 1997). Whether intrinsic processes are consciously or unconsciously chosen by the individual is debated. Gross (2007) reconciled this debate by proposing that rather than being one or the other, both apply, with a consciously used strategy becoming automatic and therefore unconscious over time.

The strategies an individual chooses to manage their emotions can affect their feelings (Gross, 1998), their ability to relate to others (Gross, 1998), their productivity at work (Aldao, Nolen-Hoeksema, & Schweizer, 2010), and their health (Aldao et al., 2010). An individual's emotion regulation also has consequences for others. Gross (1998), for example, found poorly regulated emotion in a family unit was associated with higher levels of expressed emotion, which, in turn, negatively impacted family members who were depressed by heightening their risk of relapse. Furthermore, research indicates that in addition to regulating their own emotion, individuals attempt to regulate the emotion of

others (Gross, 1999; Kring & Werner, 2004). This is particularly seen in the developmental literature, with Bowlby (1969), for example, noting that mothers initially play a significant role in regulating the emotional states of infants.

Despite evidence regarding the wider impact of emotion regulation, limited research in the adult literature has looked beyond the consequences of emotion regulation for the individual (Gross, 2007). Acknowledging this, Butler and Gross (2004) suggest research would benefit from considering the consequences of emotion regulation both for the individual and for those around them. In this thesis it is aimed to do this by investigating the emotional and interpersonal consequences of a specific emotion regulation strategy at both an individual level, and within the context of a romantic couple.

According to Gross's (2007) process model, strategies used to regulate emotions target five areas: situation selection (choosing to enter a particular situation or not), situation modification (changing aspects of the situation), attention deployment (focusing on particular aspects of a given situation), cognitive change (altering the meaning associated with a given situation), and response modulation (altering the experience or expression of emotions). Research has indicated each strategy has its own costs and benefits, with some found to increase an individual's risk of developing emotional problems (Garnefski & Kraaij, 2006; Gross & Thompson, 2007). For example, in their review of the literature, Aldao et al., (2010) found the attentional deployment strategies of self-reported rumination (over thinking) and suppression of emotion, and the situation selection strategy of avoidance were associated with greater levels of psychopathology. In contrast the cognitive change strategies of acceptance and reappraisal, and the situation modification strategy of problem solving were associated with lower levels of

psychopathology. In this thesis the unique consequences of, and specific contributors to, one of these strategies will be explored in depth. That strategy is rumination.

Rumination

There are many definitions of rumination. A very broad definition is that rumination is the process of repeatedly thinking over one's thoughts (Webster's New Collegiate Dictionary, 1981). Research has indicated individuals use rumination to manage their emotions because they believe it is a positive strategy that will provide them with greater insight into why they feel the way they do, which will, in turn, help them better understand how they are feeling and solve any problems they are facing (Lyubomirsky & Nolen-Hoeksema, 1993; Moulds, Yap, Kerr, Williams, & Kandris, 2010; Nolen-Hoeksema, 1991; Nolen-Hoeksema, Morrow, & Fredrickson, 1993; Watkins & Baracaia, 2001; Watkins & Moulds, 2005b). However, rather than lifting mood, rumination has been found to have the opposite effect of increasing depressive feelings (Nolen-Hoeksema, 1991; Spasojevic & Alloy, 2001). Response style theory suggests that this is because the way an individual responds to their mood influences the course of that mood (Nolen-Hoeksema., 1991). Thus an individual who ruminates on their mood will experience an amplification of that mood (Nolen-Hoeksema, 1991; Nolen-Hoeksema et al., 1993). Given there are different definitions of rumination, with different researchers having focused on different aspects of rumination, it is essential to first clarify these variations.

One of the most researched definitions of rumination in the literature is by Susan Nolen-Hoeksema. Nolen-Hoeksema (1991) defined rumination as repetitively thinking about the causes, consequences, and meanings of depressive thoughts, feelings, and symptoms. In recent years, this definition has been refined to reflect new research that has identified two

subtypes of rumination: brooding and reflective pondering (Treynor, Gonzalez, & Nolen-Hoeksema, 2003). Brooding is viewed as a maladaptive form of rumination and is defined as thinking gloomily about a depressive mood (Treynor et al., 2003). Reflective pondering, on the other hand, is viewed as adaptive and defined as the purposeful neutral contemplation of depressive mood that is driven by a desire to overcome problems (Treynor et al., 2003).

Like Nolen-Hoeksema (1991), other researchers have focused on specific aspects of rumination. Conway, Csank, Holm, and Blake (2000), for example, also focused on *depressive rumination*, defining rumination as repeatedly thinking about one's sad mood. Sukhodolsky, Goulb, and Cromwell (2001) and Peled and Moretti (2010) focus on *angry rumination*, defining rumination as the tendency to recall past angry experiences, and think about the causes and consequences of an angry mood. Horowitz, Wilner, and Alvarez (1979) and Wade, Vogel, Liao, and Goldman (2008) define rumination as repetitive thoughts about a specific negative event or interpersonal offence. Lastly, Martin and Tesser (1989) and Scott and McIntosh (1999), focus on *goal-oriented rumination*. Martin and Tesser (1989), for example, define rumination as recurrent thoughts that occur when there is a discrepancy between an individual's current position and their desired goal. Thinking about this discrepancy is thought to create negative emotion that will continue to increase until the goal is achieved, or until the desire for the goal is lessened (Martin & Tesser, 1989).

In contrast to this specific focus, other researchers have defined rumination more generally (referred to as general rumination; Burwell & Shirk, 2007; Saffrey & Ehrenberg, 2007; Trapnell & Campbell, 1999). Burwell and Shirk (2007), for example,

describe rumination as a style of adaptive and maladaptive repetitive thought that may follow any event. In line with the brooding and reflective styles described by Nolen-Hoeksema (see Treynor et al., 2003), adaptive repetitive thought is defined as thinking about an event in order to benefit from negative experiences (reflection), while maladaptive repetitive thought is defined as dwelling on the feelings that may arise following an event (brooding; Burwell & Shirk, 2007). Similarly, Trapnell and Campbell (1999) describe rumination as a general pattern of thought that consists of a brooding and reflective element. Brooding is defined as a persistent, involuntary, negative form of self-attention that is motivated by threats or losses to the self. This is distinguished from reflection which is defined as a positive form of self attention motivated by curiosity and a desire to gain knowledge about oneself. Like Burwell and Shirk (2007), Trapnell and Campbell (1999) noted brooding was associated with greater levels of negative mood, while reflection was associated with greater levels of positive mood.

Siegle, Stienhauer, Carter, and Thase (2000) report that despite these different definitions, significant overlap occurs with different measures of rumination to varying degrees, associated with similar negative effects. Siegle et al. (2000) looked at the association amongst seven measures of rumination, some focusing on specific aspects of rumination and others looking at general rumination. All measures were significantly associated with varying degrees of depressed mood, and resulted in similar physiological effects (reaction time, pupil dilation, and amygdala activity) after the completion of an information processing task. Siegle et al. (2000) concluded that while there is an overlap, given that measures do focus on different aspects of rumination, it is important for researchers to be clear about how they have defined rumination. In the current thesis, Study 1 defines rumination according to Nolen-Hoeksema's (1991) definition. Studies 2, 3, 4 and 5 use

Trapnell and Campbell's (1999) definition. The reason for this change in how rumination was defined is addressed in Chapter 3.

Distraction

Response style theory (Noel-Hoeksema, 1991) compares ruminative thinking with the alternative emotion regulation strategy of distraction. According to Gross's (2007) process model, distraction is an example of a situation selection strategy, where an individual chooses to regulate their emotion by altering the situation they are in. In this case, an individual chooses to take a break from their mood to engage in a pleasant event. This is distinguished from suppression in which an individual instructs themselves not to think about their mood (Nolen-Hoeksema, 1991). Accordingly, response style theory holds that in contrast to the consequences of focusing on mood, distraction will result in relieving mood (Nolen-Hoeksema, 1991; Nolen-Hoeksema et al., 1993). Literature confirming this theory is reviewed below.

Consequences of Rumination

Rumination and Depressive Symptoms

Researchers have largely focused on the relationship between rumination and depressive symptoms. A great number of cross-sectional and experimental studies indicate greater levels of rumination (both depressive rumination and general rumination) are associated with greater levels of depressive mood. Taking into account the brooding and reflective aspects of rumination previously highlighted, rumination will henceforth refer to brooding specifically, while reflection will be used to distinguish reflection.

Cross-sectional studies. Cross-sectional studies indicate rumination is associated with the onset (Just & Alloy, 1997; Nolen-Hoeksema, 2000; Robinson & Alloy, 2003) and increased severity (Nolen-Hoeksema & Davis, 1999; Nolen-Hoeksema, Parker, & Larsen, 1994; Roberts, Giboa, & Gotlib, 1998; Robinson & Alloy, 2003) of depressed mood. Nolen-Hoeksema and Morrow (1991), for example, had students rate their level of rumination before and after the 1989 Loma Prieta earthquake. Students who had higher levels of depressive rumination prior to the earthquake were found to experience more severe and longer episodes of depressed mood, reporting higher levels of depressive symptoms 10 days and 7 weeks after the earthquake. These results held after baseline mood was accounted for, suggesting that findings were due to the effects of rumination and not because of existing levels of low mood in high ruminators. In another study, Nolen-Hoeksema, Morrow and Fredickson (1993) had students keep a daily mood diary for 30 days. During this time students recorded the duration and severity of their moods and how they responded to each one (rumination vs distraction). Those who ruminated on their moods were found to experience longer periods of depressed mood. Again, this result held when accounting for the severity of initial mood. Nolen-Hoeksema et al. (1993) observed a consistency in ruminative responses, with 83% of their sample reliably responding in a similar manner.

The association between higher levels of rumination and depressive symptoms appears to generalise across different populations. Abela, Vanderbilt, and Rochon (2004), for example, found rumination was associated with higher levels of depressive symptoms amongst third and seventh graders. Abela and Hankin (2011), Burwell and Shirk (2007), and Roleofs et al. (2009) found higher levels of rumination were associated with higher levels of depressive symptoms in adolescents. Amongst students, Trapnell and Campbell

(1999) found general rumination was associated with higher levels of depressive symptoms, while Armey et al. (2009) found rumination was more strongly associated with depressive symptoms than reflection. Nolen-Hoeksema (2000) found rumination predicted the onset of depressive episodes, and subclinical depressive symptoms over the course of a year in a community sample of adults. In their sample of clinically depressed outpatients, Lam et al. (2003) found rumination was associated with higher levels of distress and hopelessness.

A few studies have found that rumination was not related to the duration of depressive symptoms. In their sample of students with a recent depressive episode, Lara, Klein, and Kasch (2000) found that once baseline severity of mood had been taken into account, rumination was not predictive of depressive symptoms after six months. Similarly, Bagby (1999) found rumination did not predict change in depression severity, treatment outcome, or the duration of a current depressive episode in a sample of clinically depressed outpatients. In response to these findings Nolen-Hoeksema, Wisco and Lyubomirsky (2008) have suggested that rumination may have less predictive power in depressed samples because depressed individuals are likely to experience higher levels of rumination, which, in turn, results in less variability in rumination levels. In addition, Nolen-Hoeksema et al. (2008) also note that rumination may contribute more to the development of depression, with other factors responsible for the maintenance of depressed mood.

Experimental studies. Researchers using experimental designs to investigate the consequences of rumination typically use a variation of Nolen-Hoeksema and Morrow's response manipulation task (Morrow & Nolen-Hoeksema, 1990; Nolen-Hoeksema et al.,

1993). This task involves inducing rumination by having participants focus on the causes, consequences and meanings of their current feelings for eight minutes. For example, participants are asked to "think about why you feel the way you do" (Morrow and Nolen-Hoeksema, 1990, p.521). This is typically contrasted to a distraction task, where participants are asked to focus their thoughts outwards (not on themselves) and take their mind away from thinking about their current emotions (for example, "think about the layout of your local shopping centre"; Nolen-Hoeksema et al., 2008, p.402) or to engage in an unrelated task such as solving a puzzle. Experimental studies indicate that while rumination increases depressive symptoms in dysphoric participants, it does not increase depressive symptoms in non-dysphoric participants (Lo, Ho, & Hollon, 2010; Lyubomirsky, Caldwell, & Nolen-Hoeksema, 1998; Lyubomirsky & Nolen-Hoeksema, 1993, 1995; Lyubomirsky, Tucker, Caldwell, & Berg, 1999; Morrow & Nolen-Hoeksema, 1990; Needles & Abramson, 1990; Nolen-Hoeksema & Morrow, 1993). McLaughlin, Borkovec and Sibrava (2007) propose that the reason for this is that non-dysphoric participants have no depressive symptoms to ruminate on, which, in turn, decreases the impact of rumination. Supporting this, researchers who have induced negative mood in non-dysphoric participants have found significant differences between those asked to ruminate versus those asked to distract. For example, Kuehner, Huffziger, and Liebsch (2009) induced sad mood by playing sad music to a group of students and asking them to recall times when they had felt lonely, rejected or hurt. Participants were then assigned to one of three emotion regulation conditions: rumination, distraction, or mindful self-focus. Results indicated that compared to those in the distraction condition, those in the rumination condition experienced a significant decrease in their mood. The mood of those in the mindful condition was found to be no better than those in the rumination condition. Similarly, McLaughlin et al. (2007) found thinking about a negative event was sufficient

to induce negative mood. They had non-dysphoric students think about and write down things they ruminated on or worried about. After a five minute break, students were given instructions on how to ruminate and asked to ruminate on the most negative topic on their list as intensely as they could. This resulted in greater levels of negative emotion and lower levels of positive emotion (McLaughlin et al., 2007).

A limitation of the rumination versus distraction experimental paradigm is that it raises a potential question about whether the negative consequences of rumination identified are due to the repetitive thought process involved in rumination, or simply because an individual has thought about a negative event (Ray, Wilhelm, & Gross, 2008). To address this, researchers have started comparing rumination with other emotion regulation strategies. For example, Grisham, Flower, Williams, and Moulds (2011) compared rumination to reappraisal (thinking about an event in a way that the meaning of the event is changed). After thinking about a sad event, Grisham et al. (2011) found individuals asked to ruminate experienced more negative emotion and less positive emotion than those asked to reappraise. Similarly, Rude, Mazzetti, Pal, and Stauble (2011) asked participants to think about an event involving rejection from either an abstract evaluative (thinking about the causes and consequences of the event), abstract contextual (thinking about how they would feel about the event in a years time and how someone else might have viewed the event), or concrete experiential (thinking about breathing and physical symptoms) point of view. Rude et al. (2011) concluded that thinking about an event from an abstract contextual (as compared to abstract evaluative) point of view resulted in lower levels of depressive symptoms a week later.

Gender. A gender bias with higher levels of rumination in females than males is noted in the literature across adolescent (Nolen-Hoeksema & Girgus, 1994), student (Cheung, Gilbert, & Irons, 2004; Mezulis, Abramson, & Hyde, 2002; Nolen-Hoeksema et al., 1993), community (Nolen-Hoeksema & Jackson, 2001), and clinical populations (Lam et al., 2003). It is suggested that the basis for this difference may be the early socialisation of gender roles where girls are encouraged to express and explore their emotions while boys are encouraged to hold in their emotions (McBride & Bagby, 2006). In a community sample of adults, Nolen-Hoeksema and Jackson (2001) found the association between rumination and gender was mediated by 1) the belief emotions were uncontrollable, 2) greater feelings of responsibility for the emotional tone of the romantic relationship, and 3) a low sense of mastery over negative events. Alternative explanations for gender differences that were not supported included higher levels of emotional distress and emotional expression in females, and a greater willingness for females to acknowledge socially undesirable traits (Nolen-Hoeksema & Jackson, 2001). This said, while females have been found to report higher levels of rumination than males, studies for which initial levels of rumination have been controlled have found the consequences of rumination are the same for both genders (Butler & Nolen-Hoeksema, 1994; Garnefski, Teerds, Kraaij, Legerstee, & van den Kommer, 2004; Nolan, Roberts, & Gotlib, 1998).

Generalisability of the effects of rumination across culture. The effects of rumination appear to generalise across cultures with cross-sectional studies from America (Nolen-Hoeksema & Morrow, 1991), England (Watkins & Baracaia, 2001), Japan (Takano & Tanno, 2008), Singapore (Hong, 2007), the Netherlands (Garnefski et al., 2004), and New Zealand (Carter et al., 2009) reporting that higher levels of rumination are associated with higher levels of depressive symptoms. Experimental studies from

America (Nolen-Hoeksema, 1991), England (Watkins & Moulds, 2007), and Denmark (Thomsen, Jørgensen, Mehlsen, & Zachariae, 2004) also support the generalisability of the consequences of rumination.

How does rumination contribute to depressive symptoms? Several theories have been proposed to explain how rumination contributes to increasing depressive symptoms. Firstly, it is proposed rumination negatively biases thinking (Morrow & Nolen-Hoeksema, 1990; Nolen-Hoeksema, 1991; Nolen-Hoeksema et al., 1993). Associate network theory (Bower, 1981) suggests emotions provide a structure for organising memories, such that each emotion has a specific node that has a specific set of memories associated with it. Memories are stored in the node corresponding to the mood the individual was in when the memory occurred, and are thought to be more likely to be activated when an individual is again in that mood (Bower, 1981; Ciesla & Roberts, 2007; Clark & Teasdale, 1982; Forgas & Bower, 1987; Teasdale & Fogarty, 1979). In regards to how this contributes to a negative thinking bias, rumination is believed to activate memories related to the depressive node. This then increases the availability of these memories and the negative cognitions and schemas stored with them, which makes the individual feel more negative, and an increases the likelihood that they will come to negative conclusions about the causes and consequences of their current mood (Lyubomirsky et al., 1998; Lyubomirsky et al., 1999; Pyszczynski, Holt, & Greenberg, 1987; Sutherland & Bryant, 2007). Distraction, in contrast, is thought to stop the activation of the depressive node by allowing emotion to subside (Rusting & Nolen-Hoeksema, 1998). Supporting this proposal, Lyubomirsky and Nolen-Hoeksema (1995) found dysphoric individuals who were asked to ruminate were more likely than those who distracted to interpret a scenario negatively, and to endorse a more pessimistic view of the

future. Similarly, Raes, Hermans, and Williams (2006) found that even when controlling for severity of depression, rumination was positively associated with a negative bias in the perception of facial expression in their sample of depressed adults.

Secondly, rumination may inhibit behaviour that could provide a brief sense of control or time out from negative mood. This, in turn, increases the likelihood that negative mood may continue without challenge (Lyubomirsky & Nolen-Hoeksema, 1993; Morrow & Nolen-Hoeksema, 1990; Nolen-Hoeksema, 1991; Nolen-Hoeksema et al., 1993). In support of this Lyubomirsky and Nolen-Hoeksema (1993, 1995) found that while students with a pre-existing low mood who were asked to ruminate were just as likely as non-dysphoric students to report liking various activities that could lift their mood, they were less willing to engage in these activities than dysphoric students who distracted. This indicates that mood alone does not reduce willingness to engage in pleasant activities, but rather it is the combination of mood and rumination which reduces motivation (Lyubomirsky & Nolen-Hoeksema, 1993).

Lastly, it is thought rumination may affect mood by interfering with effective problem solving (Donaldson & Lam, 2004; Levens, Muhtadie, & Gotlib, 2009; Lyubomirsky & Nolen-Hoeksema, 1995; Lyubomirsky et al., 1999; Morrow & Nolen-Hoeksema, 1990; Nolen-Hoeksema, 1991; Nolen-Hoeksema & Morrow, 1993; Watkins & Baracaia, 2002). As noted previously, individuals who ruminate believe that doing so assists problem solving (Lyubomirsky & Nolen-Hoeksema, 1993; Nolen-Hoeksema, 1991; Watkins & Baracaia, 2001). Rumination, however, is not the same as problem solving as it involves passively thinking about a problem, with no intention of actively changing the situation (Nolen-Hoeksema, 1991). Research has suggested that the activation of negative thoughts

(triggered by rumination) may affect attention, concentration and judgement, causing an individual to lose focus, perceive problems as overwhelming, doubt their ability to solve problems, and be less likely to commit to a solution and put that solution into action (Lyubomirsky & Nolen-Hoeksema, 1995; Lyubomirsky et al., 1999; Morrow & Noeln-Hoeksema, 1990; van Randenborgh, de Jong-Meyer, & Hüffmeier, 2010; Ward, Lyubomirsky, Sousa, & Nolen-Hoeksema, 2003). This, in turn, may create a negative cycle where problem solving fails, leading to increased feelings of low mood that reduces motivation, gives the individual more to ruminate on, and interferes with future problem solving (Lyubomirsky et al., 1999; Ward et al., 2003). In support of this model, Morrow (1990) found students induced to feel sad and ruminate, generated half as many solutions to a problem than those who were asked to distract (2.7 vs 6.3 solutions). Similarly, Donaldson and Lam (2004) found clinically depressed individuals asked to ruminate reported less effective solutions to problems and lower mood than those asked to distract. While Lyubomirsky and Nolen-Hoeksema (1995) found poorer problem solving amongst dysphoric students asked to ruminate, they also indicated that dysphoric students who distracted were just as effective at problem solving as non-dysphoric students. This suggests it is rumination, as opposed to low mood, that accounts for poor problem solving.

Rumination and Emotion

The primary focus in the literature has been on rumination and depressive symptoms. This has meant the association among rumination and negative emotion more generally is less well understood. Likely driving this gap has been a focus on rumination as defined by Nolen-Hoeksema's (1991) original response styles theory as repetitively thinking about *depressive* thoughts, feelings, and symptoms. Research on the content of depressive

rumination, however, has indicated that while individuals initially focus on their depressed mood they also focus on repetitively thinking over current personal problems (Lyubomirsky et al., 1999). In addition, the review of the literature here, has revealed rumination may be defined more broadly as a repetitive, negative form of self attention driven by threats or losses to the self (Trapnell & Campbell, 1999). Given this, it has been suggested that rumination focused on depressive symptoms specifically may not be representative of ruminative thought more generally (Thomsen, Mehlsen, Christensen, & Zachariae, 2003). This shift in our understanding of the content of rumination has implications for our understanding of the consequences of rumination. This is because a broader content of ruminative thought would likely evoke a broader range of emotion, not just depressive symptoms (Thomsen et al., 2003). In this light, the proposal that associate network theory (Bower, 1981) accounts for the association between rumination and depressive symptoms is expanded, with it suggested that ruminative thought on any emotion would activate the node for that emotion, which would then activate the memories, cognitions, and schemas related to that emotion (Rusting & Nolen-Hoeksema, 1998; Thomsen, 2006; Thomsen et al., 2003). Ruminative thought, would, in turn, maintain this emotion by continuing to focus an individual's attention on these cognitions, memories and schemas (Rusting & Nolen-Hoeksema, 1998). Supporting this proposal, an emerging body of research suggests rumination may be associated with a variety of negative emotions (Thomsen, 2006). Cross-sectional and experimental studies, for example, have found rumination to be associated with higher levels of anxiety (Armey et al., 2009; Blagden & Craske, 1996; Harrington & Blankenship, 2002; Moberly & Watkins, 2008; Muris, Roelofs, Rassin, Franken, & Mayer, 2005; Nolen-Hoeksema, 2000; Roelofs, Huibers, Peeters, & Arntz, 2008; Roelofs et al., 2009; Schwartz & Koening, 1996) and hostility (Martin & Dahlen, 2005). Research has also indicated that

rumination is associated with higher levels of general negative affect (Feldner et al., 2006; Wood, Saltzberg, Neale, Stone, & Rachmiel, 1990), embarrassment (Thomsen et al., 2004), stress (Thomsen et al., 2004), shame (Dennison & Stewart, 2006), and guilt (Orth, Berking, & Burkhardt, 2006). While these findings demonstrate a step forward in the literature, Thomsen (2006) noted further studies are needed to continue to build the case for the association between rumination and different emotions. One of the principle aims of this thesis is to consolidate on, and to contribute to this literature by exploring the effects of rumination on negative emotion more generally, and to then investigate the interpersonal consequences of rumination (e.g. the effect of rumination on feelings of relationship closeness and relationship satisfaction).

Rumination and its Interpersonal Consequences

Given rumination is a maladaptive strategy for regulating emotion, and the role effective emotion regulation plays in facilitating and maintaining close relationships (Gross, 1999; Kring & Werner, 2004), it is likely rumination will have consequences for an individual's interpersonal feelings. While the literature is limited, preliminary research has supported this proposal. In their sample of clinically depressed adults, Lam, Schuk, Smith, Farmer and Checkley (2003) found rumination was associated with greater levels of distress and difficulties in interpersonal relationships. Rumination has also been associated with feelings of jealousy (Bevan, 2006; Lavallee & Parker, 2009), and vengefulness (McCullough, Bellah, Kilpatrick, & Johnson, 2001).

Several mechanisms through which rumination may contribute to negative interpersonal feelings are highlighted in the literature. Research has indicated that ruminators have a more submissive, dependent, and clingy interpersonal style (Nolen-Hoeksema et al.,

2008; Pearson, Watkins, Mullan, & Moberly, 2010), assume greater responsibility for the well being of others (Nolen-Hoeksema & Jackson, 2001), are less forgiving (Paleari, Regalia, & Fincham, 2005; Tse & Cheng, 2006), and are more inflexible in their attitudes (Lavallee & Parker, 2009). These characteristics, in turn, have been found to have consequences for interpersonal feelings, with forgiveness, for example, associated with relationship satisfaction (Braithwaite, Selby, & Fincham, 2011). Research has also indicated that ruminators experience an increased recall of negative autobiographical memories, report greater levels of pessimistic thinking, and are less effective at solving interpersonal problems (Davis & Nolen-Hoeksema, 2000; Nolen-Hoeksema, 1991). Lyubomirsky and Nolen-Hoeksema (1995), for example, found dysphoric individuals induced to ruminate generated less effective solutions to common interpersonal problems such as *'your boyfriend/girlfriend tells you that he/she is very angry with you'* (p.184). Again, these difficulties have been found to have interpersonal consequences with problem solving, for example, associated with relationship satisfaction (McNulty & Russell, 2010). Furthermore, Jostmann, Karremans, and Fikenauer (2011) investigated how ruminators managed when they experienced fleeting negative thoughts about their romantic partners. Results from their community sample of adults indicated higher levels of rumination were associated with lower levels of implicit affect regulation (the process of automatically thinking the positive opposite to a negative thought) and greater levels of negative emotion (Jostmann et al., 2011). Negative emotion, in turn, has been associated with negative interpersonal behaviours such as attributing more blame to one's partner, which has been associated with relationship satisfaction (Tashiro & Frazier, 2007).

Perception of social support is another mechanism via which rumination may contribute to greater negative interpersonal feelings for high ruminators. The importance of social

support and its relationship with rumination is highlighted by O'Mahen, Flynn, and Nolen-Hoeksema (2010) who found high social functioning (as defined by contact with others, state of relationships in family, and value placed on relationships) moderated the effect of rumination on depression in their sample of pregnant women. Research indicates high ruminators seek greater levels of support than low ruminators, yet perceive that they have received less (Nolen-Hoeksema & Davis, 1999). Nolen-Hoeksema and Davis (1999) noted that this may be due to a negative cognitive bias that leads to negative perceptions of support. Alternatively, it may be that it is difficult to remain supportive to those who repeatedly dwell on their problems. More specifically, family and friends may become increasingly annoyed, criticise the individual for continuing to ruminate, and/or withdraw their support. In support of this, Schwartz and Thomas (1995) had participants read a scenario about a depressed student who coped with a stressor by either ruminating or distracting. Students who ruminated were perceived more negatively than students who distracted (Schwartz & Thomas, 1995).This absence of perceived social support, in turn, has implications for interpersonal feelings with greater feelings of social support associated with greater relationship satisfaction (Huber, Navarro, Womble, & Mumme, 2010).

As noted previously, the strategies an individual chooses to regulate their emotions with, not only have consequences for them, but may also affect those around them (e.g. Gross, 1998). While some research has looked at the interpersonal consequences of rumination for the individual who is ruminating, no research, to my knowledge, has looked at the effect rumination has on the romantic partners of high ruminators. For example, while research indicates high ruminators perceive the support they receive more negatively (Nolen-Hoeksema & Davis, 1999), it is not known how the partners of high ruminators

perceive the support they are given by their ruminative partner. In addition, it is not known whether an individual's level of rumination affects their partner's experience of negative emotion or relationship satisfaction. In this thesis it is proposed that an individual's ruminative thinking will affect both partners of a romantic couple.

Contributors to Rumination

Given the negative consequences associated with rumination, it is curious why people ruminate. Several factors that may encourage the development of, and reliance on, rumination as a strategy for regulating emotion have been suggested. These include individual factors such as: heightened emotional reactivity (Nolen-Hoeksema, Corte, Baumeister, & Vohs, 2004), perfectionist traits (Olson & Kwon, 2008), cognitive inflexibility that makes exiting the ruminative cycle difficult (Abremson et al., 2002; Davis & Nolen-Hoeksema, 2000; Robinson & Alloy, 2003), a low sense of mastery over the environment (Nolen-Hoeksema & Davis, 1999), and positive beliefs that rumination is a helpful strategy (Mezulis et al., 2002; Papageorgiou & Wells, 2001; Roelofs, Huibers, Peeters, Arntz, & van Os, 2007). Environmental factors are also indicated. These include: social learning (Nolen-Hoeksema, 1991), the failure to be taught more adaptive coping strategies by one's parents (Nolen-Hoeksema et al., 2004), over controlling parenting (Spasojevic & Alloy, 2001), a history of childhood sexual abuse (females only: Spasojevic & Alloy, 2001), and chronic stress (Nolen-Hoeksema & Davis, 1999). Identification and exploration of the factors that contribute to rumination can be used in the planning of treatment interventions targeting ruminative thinking and its negative consequences. Given rumination is an emotion regulation strategy, and that the strategies an individual chooses to regulate their emotions have consequences both for themselves and others (Gross, 1998), the present thesis investigated the role of two interpersonal

variables that may contribute to rumination. These were the internal factor of attachment style and the external factor of the interpersonal context in which rumination occurs.

Attachment Style

Research has indicated attachment style influences brain development (Siegel, 2001), physical health (McWilliams & Bailey, 2010), emotional intelligence (Azadi & Tehrani, 2010), and temperament (Niederhofer & Reiter, 2003). Like rumination, attachment style is also implicated in the regulation of emotion (Shaver & Mikulincer, 2007).

Bowlby (1969) defined attachment as a biologically-based bond that infants form with their primary caregivers. The initial aim of this bond is to guarantee safety and provide a sense of security by motivating infants to keep close to their caregivers. A consequence of this bond is it influences how emotions are regulated. Ainsworth, Blehar, Walters and Wall (1978) outlined three styles of attachment that reflected different strategies infants used to regulate their anxiety: a secure style, an anxious-ambivalent style, and an avoidant style. More specifically, after a period of separation from their caregivers, securely attached infants managed their anxiety by using their caregiver as a source of support, seeking comfort from them when they returned. Anxious-ambivalent infants displayed contradictory behaviour, seeking comfort but also expressing anger, while avoidant infants coped by keeping their distance, seeking no reassurance from their caregivers (Ainsworth et al., 1978).

Siegel (2001) reinforced the importance of attachment, noting that the pattern of early communication between an infant and their caregiver played a crucial role in early brain development and laid the foundation for emotion regulation. Siegel (2001) noted that

infants initially relied on their caregiver to regulate their emotional states. As they grow, however, regulating emotion becomes self driven. Siegel (2001) also noted early experiences influence neural connections and the development of neural circuits that inform emotion regulation. That is, depending on infants' experiences, the neural circuits for some strategies will be strengthened, while others will be weakened (Siegel, 2001). For example, infants who experience a secure attachment with their caregiver will be exposed to a collaborative communication style where both members share how they are feeling, listen to each other, make meaning of their experiences, and work to repair communication when it is disrupted. These experiences strengthen neural circuits that support the learning of healthy and flexible strategies for regulating emotion (Siegel, 2001). Siegel (2001) notes that this process is never ending, with neural circuits continuing to be influenced by interpersonal experiences throughout the lifespan.

Complementing the work of Siegel (2001), researchers have increasingly focused on how attachment continues to influence the regulation of emotion, as well as thoughts, expectations, and interactions in adulthood (Meyer & Pilkonis, 2001; Simpson & Rholes, 1998; Simpson & Rholes, 2010). Research indicates early attachment experiences result in the development of expectations about the world that form the basis of an internal working model (IWM) of ourselves, others, and ourselves in relation to others (Bowlby, 1977; Simpson, Rholes, & Nelligan, 1992). These internal working models are thought to consist of cognitive, affective, and behavioural coping strategies that reflect these expectations. These strategies are thought to stay with the individual, continually shaping their perceptions and influencing how they manage when under stress (Carnelley, Pietromonaco, & Jaffe, 1994; Shaver, Mikulincer, Kruglanski, & Higgins, 2007). Attachment styles in adulthood are thought to remain stable, with Scharfe and

Bartholomew (1994), for example, reporting moderate stability over an eight month period.

There is debate about the number of attachment styles. As noted above, Ainsworth et al. (1978) proposed there were three attachment styles: secure, anxious-ambivalent, and avoidant. Main and Solomon (1990) suggested a fourth style, disorganised attachment. This style represented infants who displayed no organised behavioural strategy for managing anxiety (Main & Solomon, 1990). In regards to adult attachment styles, the first self-report measure of attachment was developed by Hazan and Shaver (1987). Hazan and Shaver (1987) supported Ainsworth et al.'s (1978) formulation that attachment consisted of secure, anxious-ambivalent and avoidant styles. Bartholomew and Horowitz (1991), on the other hand, developed a measure that proposed four styles of attachment: secure, preoccupied, dismissing, and fearful. Secure attachment represented individuals who held a positive view of both themselves and others. Preoccupied attachment represented those who were preoccupied with thinking about their relationships, and held a negative view of themselves but positive view of others. Those with a dismissing attachment were dismissing of intimacy, holding a positive view of themselves but a negative view of others. Lastly, fearful attachment represented those who were fearful of intimacy, socially avoidant, and held a negative view of both themselves and others. Taking these different styles into account, researchers have identified the presence of two orthogonal dimensions that underlie these different formulations of attachment (Simpson, Rholes, & Phillips, 1996). These dimensions are anxious-ambivalence and avoidance. The anxious-ambivalence dimension represents the presence of negative views of the self and worry that a partner may not be available. The avoidance dimension reflects the degree to which an individual has a negative view of others and a preference to remain both

psychologically and emotionally distant from others. Individuals with a secure attachment are considered to be low on both dimensions (Daniel, 2006; Simpson et al., 1992; Simpson, Rholes, Orina, & Grich, 2002; Simpson, Rholes & Phillips, 1996).

Secure attachment. The IWM of securely attached adults is seen as an inner resource that promotes the use of positive appraisal and constructive coping strategies for managing distress (Mikulincer & Florian, 1998, 2004; Mikulincer, Shaver, & Horesh, 2006). For example, when their attachment system is activated by an anxiety provoking event, securely attached individuals have been found to seek support from their partner, and also to provide their partner with the support they require (Simpson et al., 1992). Similarly, when discussing a conflict, securely attached individuals are more likely to openly communicate their feelings and concerns while also listening to and acknowledging the feelings and concerns of their partners (Bouthillier, Julien, Dubé, Bélanger, & Hamelin, 2002; Dykas & Cassidy, 2011; Simpson et al., 1996). Securely attached individuals are thought to view themselves as valuable, view others as trustworthy, reliable, available and responsive, and to believe that in a relationship they are worthy of receiving support, and affection (Hazan & Shaver, 1987; Mikulincer & Florian, 2004; Simpson, 1990; Simpson et al., 1992). This allows them to develop an IWM that views stress as unpleasant but manageable. In regards to the experience of emotion, this belief is important as it allows an individual to acknowledge stress and tolerate negative emotion without becoming overwhelmed by it (Collins & Read, 1990; Mikulincer & Florian, 1998). Similar positive benefits have been found when looking at the interpersonal consequences of a secure attachment style, with the IWM of securely attached individuals found to encourage stable romantic relationships characterised by positive and trusting styles of love (Hazan & Shaver, 1987; Shaver, Collins, & Clark,

1996), higher levels of positive emotion, lower levels of negative emotion, and greater levels of trust, commitment, satisfaction, and interdependence (Collins & Read, 1990).

Insecure attachment. The IWM of insecurely attached adults is seen as a risk factor for greater levels of negative emotion. This is because the defences these individuals have created to prevent activation of their attachment systems increases the chances they will engage in less effective coping strategies when under stress (Daniel, 2006; Mikulincer & Florian, 1998). Unlike their securely attached counterparts, insecurely attached individuals are more likely to view themselves as unworthy and others as unreliable (Hazan & Shaver, 1987). Individuals with a more avoidant attachment style have been found to associate feelings of attachment with rejection, expecting people will not be there for them because they may not have been previously. When feeling threatened, these individuals have been found to protect themselves by diverting their attention, minimising or avoiding the stressor, withdrawing from conflict, and rejecting offers of support (Ein-Dor, Mikulincer, & Shaver, 2011; Fonagy, 1998; Fraley & Shaver, 2000; Simpson et al., 1992). Individuals with a more anxious-ambivalent attachment, on the other hand, are unsure if the support they need will be provided by others. They have been found to react quickly, become preoccupied with the intentions of others, and adopt a clingy, hypervigilant approach to stress (Ein-Dor et al., 2011; Fraley & Shaver, 2000; Mikulincer & Florian, 1998). Highlighting these different coping strategies , Simpson et al. (1992) undertook an experimental study where female participants were asked to engage in an anxiety provoking task. Simpson et al. (1992) found females with an avoidant attachment sought less comfort from their partner than females who were securely attached. Males with an avoidant attachment were less likely to provide their partner with the support they required. When this situation was repeated in a later study

(Simpson et al., 2002) such that the males were put in the role of experiencing the anxiety producing event, attachment style was not found to be a significant predictor of males' support seeking behaviour. However, as was found in the earlier study, females with an avoidant attachment style were found to provide their partners with less support (Simpson et al., 2002). No significant findings were noted for those with an anxious-ambivalent attachment style in either study (Simpson et al., 1992; Simpson et al., 2002).

The emotional and interpersonal consequences of an insecure attachment style. Researchers have found insecurely attached individuals are more likely to experience greater levels of negative emotion (depressive symptoms, anxiety, anger, and shame) and lower levels of positive emotion (Cooper, Shaver, & Collins, 1998; Kobak & Sceery, 1988; Mikulincer & Florian, 1998; Roberts, Gotlie, & Kassel, 1996; Shirk, Gudmundsen, & Burwell, 2005; Simpson, 1990; Simpson & Rholes, 2004; Tangney, Wagner, & Gramzow, 1992; Wei, Shaffer, Young, & Zakalik, 2005).

In regards to interpersonal consequences, insecurely attached individuals are thought to experience lower levels of trust, commitment and satisfaction, and greater levels of conflict (Collins & Read, 1990; Mondor, McDuff, Lussier, & Wright, 2011; Simpson, 1990). Simpson et al. (1996) and Bouthillier et al. (2002) both found that when discussing a conflict with their partner, individuals with an avoidant attachment displayed less warmth, less perspective taking (support and validation of their partner), and lower levels of problem solving. Those with an anxious-ambivalent attachment displayed greater anxiety and hostility towards their partner, and used more coercive strategies to elicit support which increased feelings of stress and anxiety and resulted in poorer resolutions for the conflict discussed (Bouthillier et al., 2002; Simpson et al., 1996). Furthermore,

individuals with an avoidant attachment have been found to evidence greater defensiveness, and lower levels of commitment and satisfaction in relationships (Hazan & Shaver, 1987; Treboux, Crowell, & Waters, 2004). On the other hand, those with an anxious-ambivalent attachment evidence relationships characterised by greater mood liability, obsessive dependent forms of love, low trust, and security seeking behaviours that push their partners away (Hazan & Shaver, 1987; Simpson & Rholes, 2010; Simpson et al., 1996; Treboux et al., 2004). In addition, Simpson et al. (2011) found anxious-ambivalent individuals evidenced greater levels of empathic accuracy (the accuracy with which a partner's thoughts and feelings are inferred). While empathatic accuracy is adaptive in situations of low stress, Simpson et al. (2011) note it becomes harmful in situations of high stress where it may be protective to not be fully aware of a partner's thoughts and feeling.

The Proposed Contribution of Attachment Style to Rumination

The review above has indicated that early attachment experiences are crucial in understanding how emotion is regulated, with different experiences strengthening the relationship between emotion and different emotion regulation strategies. The current thesis proposes that rumination is a core emotion regulation strategy encouraged by the early experiences of insecurely attached individuals. It is also proposed that rumination combined with the IWM of insecurely attached individuals will contribute to a greater experience of negative emotion.

As noted previously, attachment theory states that the IWM of insecurely attached individuals (as compared to securely attached individuals) contains a processing bias in which an individual holds negative views about themselves and the reliability of others

(Hazan & Shaver, 1987). This bias results in both greater levels of negative emotion and a reduction in the strategies available to manage this emotion as insecurely attached individuals are reluctant to engage in emotion regulation strategies that require the assistance of others (Mikulincer & Florian, 1998, 2004). Combined with the fact that their IWM also contains an information processing bias in which they interpret events negatively, it is likely that one of the cognitive strategies insecurely attached individuals engage in to regulate their emotion will be rumination (Saffrey & Ehrenberg, 2007). This is because rumination is an internalised emotion regulation strategy (it does not rely on the assistance of others). In addition, unlike other internalised emotion regulation strategies such as reflection, rumination is also negatively biased (Nolen-Hoeksema, 1990). It therefore both complements and validates the IWM of insecurely attached individuals by drawing their attentions to thoughts that confirm their world view (Saffrey & Ehrenberg, 2007). Further, response style theory indicates individuals ruminate in order to gain greater insight into why they feel the way they do (Nolen-Hoeksema., 1990). Given the IWM of insecurely attached individuals' contain worries about their own value and the reliability of others, rumination may be valued as a strategy that helps an individual understand these feelings.

In regards to how insecure attachment may strengthen the relationship between rumination and negative emotion, it is suggested that the information stored in each node of an individual's associative network (Bower, 1981) will be greater for an insecurely attached individual due to the greater negative emotion and cognitions associated with their IWM (Mikulincer & Florian, 2004). Therefore, once a node has been triggered, insecurely attached individuals will have a greater depth of information to ruminate on. In turn, a continued focus on negative cognitions and memories will likely maintain an

insecurely attached individual's awareness of their core vulnerabilities, increasing self-doubt and fuelling further negative emotion. Lastly, insecurely attached individuals limited range of coping strategies (Mikulincer & Florian, 1998) will likely decrease the chances of them engaging in an alternative, more adaptive, strategy for regulating their emotion.

A keyword search for 'rumination' *and* 'attachment' using the PSYC Info and Science Direct databases revealed eight studies that have looked at the relationship between these variables. Four studies looked at rumination and insecure attachment using student samples. Confirming the above proposal, each indicated insecure attachment may be associated with rumination. Brown and Phillips (2005) found a positive correlation between goal oriented rumination and insecure attachment. Burnette, Taylor, Worthington, and Forsyth (2007) found angry rumination mediated the association between insecure attachment (fearful, dismissing, and preoccupied styles) and forgiveness. Similarly, Burnette, Davis, Green, Worthington, and Bradfield (2009) found angry rumination mediated the association between anxious-ambivalent attachment and forgiveness. Both Burnette et al. (2009) and Burnette et al. (2007) suggested secure attachment was associated with less rumination, which, in turn, promoted greater forgiveness. Lastly, Saffrey and Ehrenberg (2007) found general rumination mediated the relationship between anxious-ambivalent attachment and negative adjustment following the break up of a relationship (in the last 12 months). Relationship specific rumination (ruminating on a past relationship) was found to mediate the association between anxious-ambivalent attachment and negative adjustment. Reflection was associated with positive adjustment (Saffrey & Ehrenberg, 2007).

Of the four remaining studies, one looked at rumination and attachment in adolescence (Margolese, Markiewicz, & Doyle, 2005), while the other three looked at community samples of adults (Pearson, Watkins, & Mullan, 2011; Pearson et al., 2010; van der Houwen, Stroebe, Schut, Stroebe, & van den Bout, 2010). Margolese et al. (2005) had adolescents read eight vignettes about hypothetical interpersonal scenarios involving a specific target person (mother, father, best friend, and romantic partner). Each target person was presented in two scenarios. One scenario involved a situation in which the target person was unavailable to talk, while the other involved a scenario in which the target person was rejecting and disapproving of the individual. Participants then rated how they would respond to each situation. Results indicated negative attributions and rumination mediated the relationship between insecure attachment and depression for romantic partners only. More specifically, adolescents were found to ruminate when confronted with stress involving a romantic partner, which was then associated with greater depressive symptoms. Margolese et al. (2005) suggest these findings indicate individuals may chose to ruminate in specific situations as opposed to every situation. In this case romantic relationships (as compared to relationships with parents and friends) may have encouraged ruminative thinking due to adolescents' limited experience in relationships and their greater uncertainty about themselves in this situation (Margolese et al., 2005).

In regards to the findings from community samples, mixed results are reported. Pearson et al. (2010), reported that while a correlational analysis indicated rumination and anxious-ambivalent attachment were significantly associated amongst their currently depressed, previously depressed and never depressed participants, regression analyses suggested that they were not associated. Pearson et al. (2010) note this may have been because their

regression analysis controlled for depressive symptoms, indicating that the association between rumination and insecure attachment was due to their shared association with depressive symptoms. In addition, it is also possible that this finding may have been influenced by how attachment was assessed, with regression analyses supporting the association between rejection sensitivity (an aspect of insecure attachment) and rumination. Supporting this, in a later study Pearson et al. (2011) assessed attachment solely with a measure of rejection sensitivity. This analysis was significant, with rejection sensitivity predicting increased levels of rumination six months later. Lastly, in a Dutch sample of individuals who had been bereaved in the past three years , van der Houwen et al. (2010) found rumination and negative interpretations of grief (for example, "If I allow my feelings to run loose, I will lose control", p.1672) mediated the relationship amongst insecure attachment and grief, depressive symptoms, and emotional loneliness.

Overall, the eight studies mentioned here indicate rumination and insecure attachment are likely associated, and highlight the role insecure attachment plays in contributing to the relationship between rumination and depression (Margolese et al., 2005), forgiveness (Burnette et al., 2009; Burnette et al., 2007), negative adjustment (Saffrey & Ehrenberg, 2007) and bereavement (van der Houwen et al., 2010). Notably, no research has examined whether insecure attachment may strengthen the relationship between rumination and the negative emotions of shame, guilt and anger. Furthermore, no research has looked at the interpersonal consequences of attachment and rumination beyond forgiveness and post relationship adjustment.

Summary of Gaps in the Literature

Rumination refers to an unproductive style of repetitive thought that individuals may engage in, in an attempt to regulate emotion. However, rather than lifting mood as intended, rumination worsens mood (Nolen-Hoeksema, 1991; Spasojevic & Alloy, 2001). While it is well established that rumination results in greater levels of depressive symptoms and depressed mood, the unique effects of rumination on a broader range of negative emotions is not well understood. The specific consequences of rumination, beyond its effect on emotion (e.g. on interpersonal feelings), are also not well understood. Given that humans are social creatures who seek the company of others, and the role that effective emotion regulation plays in facilitating social interactions, understanding the specific broader consequences of rumination is essential. This is because it likely not only has implications for an individual's emotional well-being but also for the well-being of their social relationships.

A gap in the literature regarding what is known about the consequences of rumination beyond the individual who is ruminating is also highlighted. With emotion regulation evidenced to have consequences for the emotions of others as well as consequences for the individual, it is possible that one individual's rumination may have consequences for another. To date, this proposal has not been tested.

Factors that may contribute to the use of rumination as an emotion regulation strategy and increase the negative consequences of rumination have been noted in the literature. One possible contributor discussed is that of insecure attachment. Notably, while research has indicated insecure attachment and rumination contribute to the experience of depression, forgiveness, bereavement, and adjustment, to my knowledge no research has looked at the

contribution of rumination and insecure attachment to negative emotion more broadly, nor to additional interpersonal feelings. The context in which rumination occurs has also been highlighted as another possible contributor, with Margolese et al. (2005), for example, suggesting rumination may be a strategy reserved for some contexts but not others. Given this thesis is interested in exploring the consequences of rumination beyond the individual who is ruminating, the crucial role insecure attachment plays in the development and maintenance of relationship bonds, and the role one's romantic partner plays in meeting one's attachment needs in adulthood, the specific context explored in this thesis is that of a romantic relationship.

Objectives of Thesis

The primary objective of this thesis is to broaden the current model of rumination by exploring the unique contribution of rumination to the negative emotions of shame, guilt, and anger. In addition, it is also aimed to explore the unique effect of rumination on relationship satisfaction, relationship closeness, relationship conflict, and relationship support. There are three levels to this objective. The first level involves investigating the emotional and interpersonal consequences of rumination for the individual. The second level involves exploring the emotional and interpersonal consequences of rumination for the partner of that individual. The third level involves exploring the emotional and interpersonal consequences of ruminating together with one's partner.

The second main objective of this thesis is to explore the interpersonal variables that may contribute to the use of rumination as an emotion regulation strategy. The role of attachment is explored, as is the context in which rumination occurs, with rumination in the confines of a romantic relationship specifically investigated.

Chapter 2

An Investigation of the Broader Emotional Consequences of Rumination and the Contribution of Attachment Style

---

The aim of Study 1 was to contribute to our understanding of rumination as an emotion regulation strategy by investigating its unique consequences for negative emotion, as well as its effect on depressive symptoms. A second aim was to explore the contribution of attachment style to rumination and the combined effect of these two variables on negative emotion. In regards to specific negative emotions, it was noted previously that rumination may be associated with greater shame, guilt, and anger (Dennison & Stewart, 2006; Martin & Dahlen, 2005; Orth et al., 2006). In this chapter, the association amongst rumination and these emotions will be explored in greater depth. In doing this, the literature regarding rumination, shame, guilt, and anger will first be reviewed. Study 1 will then be outlined and its findings discussed.

Rumination and Emotion

In the previous chapter it was noted that due to a focus on depressive rumination, research has largely focused on the relationship between rumination and depressive symptoms. It was also noted that research looking at the content of depressive rumination has found individuals focus on thinking about their personal problems as well as their low mood (Lyubomirsky et al., 1999). This broader content of rumination increases the possibility that emotions other than depressive symptoms will be experienced, thereby triggering additional emotion nodes in an individual's associative network. As for depressive symptoms, it is suggested here that rumination would intensify any emotion experienced by drawing an individual's attention to the memories, cognitions, and schemas associated

with the different nodes that have been triggered (Bower, 1981; Rusting & Nolen-Hoeksema, 1998; Thomsen et al., 2003; Thomsen, 2006). As for depressive symptoms, it is also suggested here that rumination would also heighten emotion by inhibiting behaviour that could provide brief break from the emotion, and by interfering with effective problem solving.

Shame and guilt were chosen to be investigated in this chapter because they have been found to influence an individual's sense of self and perceptions of how others see them (Joireman, 2004). As repeatedly thinking about an event increases an individual's awareness of their behaviour and the effect they have on others, it is possible that shame and guilt will be experienced and that rumination will magnify these feelings as they are repeatedly reminded of their actions (Cheung et al., 2004; Joireman, 2004). Anger, on the other hand, was chosen because it is a common emotional response to a difficult interaction (Berkowitz, 1999). Given individuals are likely to ruminate on difficult situations (Lyubomirsky et al., 1999) it is probable they will also experience emotions of anger when doing so.

Rumination and Shame

Shame is defined as feelings of inferiority and disgrace caused by the perception that behaviour has not been honourable or proper (Joireman, 2004; Wolf, 1981). Shame is typically characterised by negative judgements about the self, as well as a desire to hide away from others (Joireman, 2004). A keyword search for 'rumination' *and* 'shame' using the PSYC Info database revealed seven studies that have looked at the relationship between these two variables. All seven found rumination to be associated with higher levels of shame (Cheung et al., 2004; Dennison & Stewart, 2006; Gilbert, Cheung, Irons,

& McEwan, 2005; Grabe, Hyde, & Lindberg, 2007; Joireman, 2004; Orth et al., 2006; Speckens, Ehlers, Hackmann, Ruths, & Clark, 2007).

Gilbert et al. (2005) and Cheung et al. (2004) both investigated external shame (feeling judged by others; Gilbert et al., 2005) as measured by the 'Other as Shamer Scale' (OAS; Goss, Gilbert, & Allan, 1994). This 18 item scale assesses an individual's perceptions of how they are viewed by others (for example, "I think other people see me as inadequate"; Gilbert et al., 2005, p. 275). Both studies were self-report and used student samples. Both found rumination was associated with greater levels of external shame (Cheung et al., 2004; Gilbert et al., 2005). In addition to external shame, Cheung et al. (2004) investigated an individual's feelings of shame about their body, behaviour, and character. All measures of shame were associated with greater rumination, depressive symptoms and submissive behaviour. A significant gender difference was observed, with males who scored highly on external shame experiencing significantly greater levels of rumination than females. Cheung et al. (2004) also found rumination combined with shame accounted for greater levels of depression than was accounted for by shame alone. This finding held for all measures of shame (Cheung et al., 2004).

Dennison and Stewart (2006) and Joireman (2004) both assessed shame with the Test of Self Conscious Affect (TOSCA; Tangney, Wagner, & Gramzow, 1989). This involved the students who participated noting how they would respond to15 hypothetical situations. One of the constructs participants rated referred to their experience of shame. Like Gilbert et al. (2005) and Cheung et al. (2004), Dennison and Stewart (2006) and Joireman (2004) found rumination and shame to be associated. Joireman (2004) further found a reciprocal

relationship between rumination and shame, with feelings of shame increasing levels of rumination, and rumination heightening levels of shame (Joireman, 2004).

The association between rumination and shame has been found to generalise to different populations. Gabe et al. (2007) found shame about one's body was significantly positively correlated with rumination amongst adolescents. Orth et al. (2006) found rumination mediated the effect of shame on depression in their Swiss community sample of single parents. Lastly, Speckens et al. (2007), found rumination was associated with greater levels of shame in their clinical sample of 31 individuals with Post Traumatic Stress Disorder.

Rumination and Guilt

Guilt involves feelings of responsibility or remorse over a specific act or action (Joireman, 2004; Wolf, 1981). For example, 'when I yelled at him I hurt his feelings' (Wolf, 1981). Little is known about the relationship between rumination and guilt, with a keyword search of 'rumination' *and* 'guilt' in the PSYC Info database identifying only two studies (Joireman, 2004; Orth et al., 2006). Both studies were mentioned in the review of shame above, as both researchers investigated guilt and shame. Joireman (2004) found no significant correlation between rumination and guilt. In contrast, Orth et al. (2006) found rumination was correlated with higher levels of guilt. They also found rumination mediated the relationship between guilt and depression. When shame was included as a covariate in this analysis, however, the relationships between guilt and rumination, and guilt and depression, were no longer significant. As a result, Orth et al. (2006) concluded that shame, but not guilt, had a strong unique relationship with both depression and rumination.

Rumination and Anger

Anger refers to a strong feeling of displeasure often caused by the belief one has been wronged (Wolf, 1981). A keyword search of 'rumination' *and* 'anger' in the PSYC Info database revealed fifteen studies that reported on the relationship between these two variables. Of these studies, ten used a self-report methodology. Martin and Dahlen (2005), Thomsen, Mehlsen, Christensen and Zachariae (2003) and Noguchi and Fujiu (2007) all reported a significant positive correlation between rumination and anger in their respective samples of American, Danish and Japanese students. Arai and Yukawa (2006) found rumination was associated with feeling angry for longer, while Simpson and Papageorgiou (2003) found rumination increased angry mood and was implicated in the maintenance of anger in their clinical sample of ten patients with anger control problems. Borders (2007) found individuals who drank heavily and ruminated more reported that they were more likely to behave aggressively after drinking. Balsamo (2010) found rumination mediated the relationship between anger and depression in their community sample of Italian adults. In another community sample, Borders, Earleywine and Jajodia (2010) found mindfulness may reduce rumination, which, in turn, may reduce aggression (Borders et al., 2010). Orth, Cahill, Foa and Maercker (2008) investigated the relationship between feelings of anger (experienced over the past week) and PTSD symptoms in a community sample of females who had experienced a sexual or non sexual assault. Rumination was found to mediate the effect of PTSD symptoms on anger, with PTSD symptoms not associated with anger when rumination was controlled for. Lastly, Trew and Alden (2009) looked at the relationship amongst rumination, social anxiety and trait anger in a sample of students. Rumination was found to mediate the relationship between social anxiety and trait anger, with social anxiety no longer related to trait anger when rumination was controlled for. This suggested that ruminating on past events may

heighten awareness of past injustices, causing greater feelings of anger in individuals who are socially anxious (Trew & Alden, 2009).

Five additional studies utilised experimental designs when looking at the relationship between rumination and anger. Denson, Moulds, and Grisham (2012) had students either ruminate or reappriase an anger inducing past event, or to distract from thinking about this event (describe the layout of campus) for 20 minutes. Rumination maintained, but did not increase, feelings of anger. Reappraisal and distraction decreased feelings of anger (Denson et al., 2012). Similarly, Ray, Wilhelm and Gross (2008) had female students think about an anger provoking event and then either ruminate on the event or reappraise it (thinking about the event in an objective and positive way). Rumination was found to increase anger and heighten the likelihood of continuing to think about the event after being told that one could stop. Rusting and Nolen-Hoeksema (1998) found male and female students who ruminated (as compared to those who distracted) experienced greater anger. Thomsen, Jørgensen, Mehlsen and Zachariae (2004) had Danish students rate their feelings before and after a task designed to induce stress. Analyses indicated those with higher levels of trait rumination experienced greater levels of anger after the task. Lastly, Fabiansson, Denson, Moulds, Grisham, and Schira (2012) used functional magnetic resonance imaging to investigate the neural mechanisms involved in regulation of anger. Fabiansson et al. (2012) had students recall an anger inducing memory then engage in three different emotion regulation tasks: reappraisal, analytical rumination (thinking about the causes and consequences of the event), and angry rumination (thinking about angry feelings and emotional aspects of the event). Reappraisal produced the least self-reported anger, while angry rumination produced the most. In regards to their neural findings, differences in functional connectivity between the amygdala (which is involved in

emotion processing), and the thalamus (which is involved in mood, arousal and episodic memory) were observed with both types of rumination (analytic and angry), as compared to reappraisal, associated with increased activation in the amygdala and thalamus (Fabiansson et al., 2012).

Overall, these findings suggest rumination is associated with increased anger. Unlike the findings regarding shame, and guilt, the above literature suggests rumination augments factors to both increase negative outcomes (depression, alcohol consumption, PTSD symptoms and social anxiety) and reduce the use of positive strategies (e.g. mindfulness). The association between anger and rumination has been found across different cultural (Balsamo, 2010; Martin & Dahlen, 2005; Noguchi & Fujiu, 2007) and age groups (Borders et al., 2010; Trew & Alden, 2009).

Angry Rumination and Anger. In addition to those studies that have examined the association between rumination and anger, a further twelve studies were found that assessed the relationship between *angry rumination* (rumination on an angry event) and anger. In their student samples, Anestis, Anestis, Selby and Joiner (2009), Peled and Moretti (2010), Sukhodolsky, Golub, and Cromwell (2001), and Siewert, Kubiak, Jonas, and Weber (2011) all found angry rumination to be associated with higher levels of anger. Berry, Worthington, O'Connor, Parrott, and Wade (2005) found vengeful rumination mediated the relationship between forgivingness and anger following a recent transgression. Bushman (2002) found students asked to punch a punching bag while ruminating on someone who had angered them, felt angrier than those asked to think about being fit. Similarly, Bushman, Bonacci, Pedersen, Vasquez, and Miller (2005) found students asked to ruminate on negative test feedback, experienced greater displaced

aggression (aggression that is unable to be aimed at the target and therefore is aimed at someone else) after a minor annoyance. Lastly, Collins and Bell (1997) examined the responses of male students to a provoking situation (negative feedback on a memory task). After a 10 minute delay, high ruminators reported experiencing higher levels of aggression.

In line with research looking at rumination, the above findings indicate angry rumination is associated with greater levels of anger. In addition, angry rumination has the ability to mediate the relationship between anger and forgiveness. As was found with general rumination, the effects of angry rumination appear to generalise across different samples. Significant relationships between angry rumination and anger have been reported across child (Repper, 2007), adolescent (Caprara, Paciello, Gerbino, & Cugini, 2007), community (Maxwell, 2004), and clinical populations (Peled & Moretti, 2007).

Summary and Gaps in the Literature

The above review confirms varying evidence for the consequences of rumination extending to the emotions of shame, guilt, and anger. In regards to shame, further research is warranted with only one study (Cheung et al., 2004) exploring the association between rumination and internal feelings of shame (other studies explored external shame, body shame, and situation specific shame). Further research is also warranted for guilt, with the two studies published in this area (Joireman, 2004; Orth et al., 2006) suggesting these variables were weakly correlated. Lastly, while a greater research basis for the relationship between rumination and anger was indicated (as comapred to that for shame and guilt), given anger is a common emotional response to a difficult situation, further research consolidating this relationship would be benifical.

Contribution of Attachment

Rumination and Attachment

In Chapter 1 it was noted that given the consequences associated with rumination, it is puzzling as to why some individuals continue to ruminate. One interpersonal variable proposed as a factor that may explain why some people experience greater levels of rumination was attachment. Specifically, it was suggested that the IWM of insecurely attached individuals may encourage the use of rumination as a strategy for regulating emotion. This is because rumination is an internalised strategy that allows an individual to regulate their emotion without needing to engage the assistance of others. Rumination's negative focus also complements the negative focus of an insecurely attached individual's IWM and provides a continuous stream of evidence that validates this model (Saffrey & Ehrenberg, 2007). A growing body of research has supported this proposal. Please refer to Chapter 1 for a review of this literature.

Attachment, Rumination, and Emotion

Of the literature reviewed in the current chapter, it was observed that no study has looked at what variables may contribute to increasing the negative consequences of rumination on shame and guilt. A limited number of studies have, however, undertaken this for anger: Boarders et al. (2007) looked at the contribution of alcohol consumption, Boarders et al. (2010) looked at the role of mindfulness, and Trew and Alden (2009) looked at the role of social anxiety. In this thesis it was proposed in addition to insecurely attached individuals being more likely than securely attached individuals to ruminate, insecure attachment may combine with rumination to increase its negative consequences. This is because the negative cognitive and emotional content of an insecurely attached individual's IWM provides them with a greater depth of information to ruminate on. Rumination, in turn,

will likely contribute to the continued activation of these negative cognitions and memories by encouraging an individual to repeatedly dwell on these thoughts. As a result, an insecurely attached individual's awareness of their core vulnerabilities will likely be heightened. This, in turn, will likely increase emotion by fuelling further self-doubts in the ability of the self, and/or others to manage the emotion one is experiencing (Saffrey & Ehrenberg, 2007). Further, once rumination has commenced, the limited range of emotion regulation strategies contained in the IWM of insecurely attached individuals (as compared to secure) would likely decrease the chances of these individuals engaging in alternative more adaptive strategies to manage the emotions they are experiencing (Daniel, 2006; Mikulincer & Florian, 1998).

Literature supporting the association between rumination, shame, guilt, and anger has been noted previously. In addition to this research, there is some evidence for the association between insecure attachment, shame, guilt, and anger. Shame is characterised by negative judgements about the self (Joireman, 2004), while guilt involves worrying about the effect one may have had on others (Akbağ & Erden İmamoğlu, 2010). Given this, it would therefore follow that individuals with an IWM that contains doubts about abilities, and the potential to be loved, would be at risk of experiencing heightened levels of these emotions. Supporting this, insecure attachment has been found to be associated with greater levels of shame (Lopez et al., 1997; Wagner & Tangney, 1991) and guilt (Akbağ & Erden İmamoğlu, 2010; Lopez et al., 1997). On the other hand, it would also follow that individuals who hold an IWM that views the world and those in it negatively, would be more likely to experience negative interactions which, in turn, may foster feelings of frustration and hostility. Supporting this, several studies have reported

significant positive correlations between insecure attachment and anger (Troisi & D'Argenio, 2004; Mikulincer & Florin., 1995; Wagner & Tangney, 1991).

Study 1

The primary objective of Study 1 was to investigate the contribution of rumination to shame, guilt, anger, and depressive symptoms. The secondary objective was to investigate the contribution of attachment style to rumination, and to then examine the contribution both factors in predicting depressive symptoms, shame, guilt, and anger. Three hypotheses were proposed. Firstly, in line with past research, it was proposed that rumination would be associated with higher levels of depressive symptomatology. In addition, it was also proposed that rumination would be associated with greater levels of shame, guilt, and anger. Secondly, it was proposed that insecurely attached individuals more likely to ruminate than securely attached individuals. Lastly, it was hypothesised that insecure attachment would moderate the relationship between rumination and negative emotion (depressive mood, depressive symptoms, shame, guilt, and anger).

Method

Participants

One hundred and eighty seven students (136 females) from the University of Canterbury volunteered to participate in this study[1]. Students were recruited via emails advertising the study to Psychology, Education and Mathematics' course lists, posters placed in several departments and lecture halls, and 100 flyers handed out across a range of University sites

[1] This study was run as part of a larger study headed by Dr Janet Carter. The larger study involved participants completing two questionnaire booklets four months apart. Data for this study came from the first booklet. I was involved in decisions on questionnaires to include. Along with another research assistant, I was responsible for the recruitment of participants, the running of the study, and data input. I am solely responsible for the data analysis and discussion presented here in regards to the aims for my component of the study.

(see Appendix A). Study participants received a $25.00 gift voucher for their participation. Table 1.1 summarises the demographic characteristics of this sample. As can be seen in Table 1.1, the average age of female participants was 24 years, and the average age of male participants was 26 years. The sample was primarily New Zealand European (65.8%). The remaining participants were Chinese (8.6%), European (7.5%), New Zealand European and Maori (2.7%), South East Asian (2.1%), Indian (1.6%), Samoan (1.1%), and other ethnicities (10.2%). Approval for this study was given by the University of Canterbury Human Ethics Committee (HEC ethics application number 2007/76).

Table 1.1

Sample Characteristics, Study 1

Variable	Males Mean (*SD*) or *N* (%)	Females Mean (*SD*) or *N* (%)
Sample Number	51 (27%)	136 (73%)
Mean age (years)	26.20 (11.70)	24.24 (7.94)
Age range (years)	17-61	18-55
Ethnicity (Percentage of sample is indicated in parentheses)		
New Zealand European	38 (74.51)	93 (68.38)
New Zealand European and Maori	1 (1.96)	2 (1.47)
Samoan	1 (1.96)	2 (1.47)
Chinese	4 (7.69)	12 (8.82)
Indian	2 (3.92)	1 (0.74)
European	4 (7.69)	10 (7.35)
South East Asian	0 (0.00)	4 (2.94)
Other	1 (1.96)	11 (8.09)
Present relationship status		
In a relationship (not living with partner)	11 (21.57)	45 (33.09)
In a relationship (living with partner)	14 (27.45)	38 (27.94)
Single	26 (50.98)	52 (38.24)

Measures

Demographic questions. Participants completed a demographic questionnaire that asked them to report their age, gender, ethnicity and current relationship status (in a relationship (but not living with partner), in a relationship (and living with partner), or single).

Rumination. The Rumination Scale of the *Response Styles Questionnaire* (RSQ-R; Nolen-Hoeksema & Morrow, 1991) is a 22 item self-report measure of rumination. Each item describes a response to depressed mood that is focused on the self, symptoms or possible causes and consequences of one's mood (Nolen-Hoeksema & Morrow, 1991). Participants read each item and indicate on a 4 point scale whether they 'never' (1), 'sometimes' (2), 'often' (3), or 'always' (4) 'think or do each one when they feel down, sad, or depressed'. Participants were asked to indicate what they '*generally'* do, not what they think they should do. All items were then summed. Total scores range from 22 to 88, with higher responses indicating greater rumination. The mean response of females in Nolan, Roberts and Gotlib's (1998) sample of university students was 46.82, while the mean response for males was 41.22. The RSQ-R has good test-retest reliability and acceptable convergent and predictive validity (Nolen-Hoeksema, 1991; Nolen-Hoeksema & Girgus, 1994). The RSQ-R also has good internal consistency, with Nolan et al. (1998) reporting a Cronbach alpha of .90. Furthermore, Nolen-Hoeksema, Morrow, and Fredickson (1993) found university students' responses on the RSQ-R correlated significantly (r = .62) with their daily ruminative responses to depressed mood as measured in a 30-day diary study.

Attachment. Attachment Style was measured with Simpson, Rholes, and Phillips (1996) *Adult Attachment Questionnaire* (AAQ). The AAQ consists of 17 items derived from Hazen and Shaver's (1987) attachment vignettes. These vignettes consisted of a short description of the three attachment styles (secure, anxious-ambivalence, and avoidance). Participants were asked to read each description then indicate which one best described them. In regards to the AAQ, participants were asked to read each of the 17 items and indicate on a 7 point likert scale (anchored 1 (*strongly disagree*) to 7 (*strongly agree*)) the degree to which they endorsed each statement. The AAQ assesses general attachment. It can also be used to assess attachment in different relationships. Given research has indicated attachment may be better viewed as context specific (Margolese et al., 2005), and the role one's romantic partner plays in meeting one's attachment needs in adulthood, for the present study participants were asked to rate each item with regard to their *'close romantic relationships in general'.*

Two orthogonal dimensions underlie the AAQ. The first dimension reflects avoidant attachment. That is, the degree to which an individual holds a negative view of others and tends to avoid or withdraw from closeness and intimacy in relationships (Simpson et al., 1996). Items for this dimension come from Hazen and Shaver's (1987) secure and fearful (avoidant) vignettes. These two factors correlate negatively and form opposite poles on this dimension (Simpson et al., 1996). The second dimension taps anxious/ambivalence, that is, the degree to which an individual possesses a negative view in regard to their relationships, and is excessively preoccupied with issues of abandonment, loss and their partner's level of commitment (Simpson et al., 1996). Items for this dimension come from Hazen and Shaver's (1987) anxious/ambivalent vignette, as well as further items tapping level of anxiety about abandonment and worry that love will not be reciprocated (Simpson

et al.,1996). Items are scored so that higher scores indicated greater levels of each dimension. Securely attached individuals score low on both dimensions, reflecting positive beliefs about the 'self' and 'others'(Simpson et al.,1996). Possible scores on the avoidance dimension ranged from 8 to 58. In their sample of dating couples (at least one of whom was a student), Simpson et al. (1996) reported mean scores on the Avoidant subscale of 26.93 for males and 26.25 for females. Furthermore, they reported this subscale was internally consistent with Cronbach alphas of .70 for males and .74 for females. Total scores on the Anxious-ambivalent subscale ranged from 9 to 63. For this dimension, Simpson et al. (1996) reported a mean score of 30.15 for males and 30.02 for females (Cronbach alphas of .72 and .76 respectively).

Following the example of Carr and Fizpatrick (2011), Dezfulian (2005), and Miner (2009) a total attachment score was also tallied. This variable was calculated by combining all scores. Possible scores ranged from 17-121, with higher scores indicating greater levels of insecure attachment.

Depressive mood and depressive symptoms. The *Centre for Epidemiological Studies - Depression Questionnaire* (CES-D; Radloff, 1977) is a 20 item self-report measure designed to assess depressive symptomatology in the general population. Participants are presented with a list of behaviours. They are asked to indicate 'how often they have felt or behaved these ways during the past week.' Each item is rated on a 4 point likert scale: 0 = *rarely or none of the* time *(less than 1 day),* 1 = *some or little of the time (1-2 days),* 2 = *occasionally or a moderate amount or time (3-4 days), 3 = most or all of the time (5-7 days).* The 20 items of the CES-D are then summed to provide a total score with a possible range from 0 to 60. Higher responses indicate more frequent and

severe depressive symptoms. The traditional cut-off indicating clinically significant symptoms for depression is a total score of 16 or higher (Radloff, 1977).
Factor analysis has identified that the CES-D consists of four factors: depressed mood, somatic symptoms, interpersonal problems and positive affect (Radloff, 1977; Shafer, 2006; Williams, Taylor, Makambi, Harrell, Palmer, Rosenberg, & Adams-Campbell, 2007). In this study the depressed mood factor was used to specifically look at depressed mood, while the CES-D total score was used to investigate the association between rumination and depressive symptoms.

The CES-D has high internal consistency, with Radloff (1991) reporting a Cronbach alpha of .87 amongst a sample of university students. Good validity has been established. The CES-D correlated well with other self-report measures of depression (Radloff, 1991). It also has the ability to distinguish clinically depressed from non-clinically-depressed groups (Radloff, 1991).

Shame. Shame was assessed using the 10 item shame scale from the *Personal Feelings Questionnaire* (PFQ-2; Harder, Lewis, Butcher, & Spielberger, 1987). Participants are presented with a list of feelings (for example, regret, remorse, mild guilt) and asked to indicate how common those feelings were for them. Responses were given on a 5 point likert scale, ranging from 0 to 4. A response of 0 indicated they '*never experience that feeling*,' 1 indicated they experience the feeling '*rarely*,' 2 that they experience it '*some of the time*,' 3 that they experience it '*frequently but not continuously*,' and 4 that they experience it '*continuously or almost continuously'* (Harder et al., 1987). Possible scores range from 0 to 40 with higher scores reflecting greater levels of shame. The shame scale of the PFQ-2 has satisfactory internal consistency.

Harder and Zalma (1990) reported a Cronbach alpha of .78 for shame in their sample of university students. They also reported test-retest score of .91. Amongst this sample the mean response for shame was 16.3 (Harder & Zalma., 1990).

Guilt. Guilt was measured by the 6 item guilt scale of the *Personal Feelings Questionnaire* (Harder et al., 1987). Possible scores for guilt ranged from 0 to 24, with higher scores indicating greater guilt. Research has indicated that the guilt scale of the PFQ-2 has satisfactory internal consistency with Harder and Zalma (1990) reporting a Cronbach alpha of .72 in their sample of university students. They also report a test-retest reliability of .85. Amongst this sample the mean response for guilt was 9.76 (Harder & Zalma., 1990).

Anger. The *Symptom Checklist – 90* (SCL-90; Derogatis, Lipman, & Covi, 1973) is a 90 item self-report scale that was designed to assess a range of behaviour in psychiatric outpatients. The anger-hostility subscale of this measure was used in this study as a measure of anger. This scale consists of six items organised around three categories of hostile behaviour: thoughts, feelings and actions. Participants are presented with a list of problems and complaints people sometimes have. They are asked to indicate on a 5 point likert scale how much each problem had bothered or distressed them in the past week (0 = *not at all*, 1 = *a little bit*, 2 = *moderately*, 3 = *quite a bit*, and 4 = *extremely* (Derogatis et al., 1973). Higher responses indicated greater feelings of hostility and anger. The SCL-90 is widely used in non-clinical as well as clinical populations. In their sample of staff and university students (without a history of psychiatric problems), Akiyoshi et al. (1998) report a mean score of 0.9 on the Hostility scale. The SCL-90 has well reported reliability and validity (Derogatis & Cleary, 1977). As evidence of this, Tangney,

Wagner, and Gramzow (1992) report a Cronbach alpha of .82 for the Hostility Scale in their sample of college students.

Procedure

Interested participants were provided with an information sheet about the study (see Appendix B). Following this, individuals who wished to participate were invited to the laboratory to complete a consent form (see Appendix C) and a booklet containing the self-report measures outlined previously. The order of questionnaires in the booklet was randomised for each participant. Participants completed the questionnaires individually but seated in groups ranging from one to ten individuals, with the researcher present. Typically two to three individuals completed the booklet at the same time. Participants were not allowed to talk to each other and could not see each other's responses. After completion of the questionnaire booklet, participants were given a verbal debriefing and received a debrief handout to take away as per the participant pool protocol (see Appendix D). Participants were encouraged to make contact should they have any further questions.

Statistical Analyses

All data were entered into a Microsoft ACCESS (2007) database. A random ten percent of the questionnaire booklets were rechecked to ensure data had been entered correctly. Data were transferred from the ACCESS database into SPSS (IBM, 2010) for statistical analyses. All data were examined for anomalies and normality of distribution was explored for each variable. Only anxious-ambivalent attachment and avoidant attachment fit a normal distribution. Depressive symptoms, shame, guilt, and rumination scores were transformed to normal. Depressive symptoms, shame, and guilt were transformed using a

square root transformation. Rumination was transformed using a natural log transformation. Depressed mood and anger were very positively skewed and unable to be transformed to fit a normal distribution. As a result, these variables were left in their original distribution. All data were standardised. See Appendix E for normality tables.

Correlation analysis was used to examine the relationship between attachment style and rumination. Regression analyses were used to examine if depressive symptoms, shame, guilt, and anger were predicted by insecure attachment and rumination. Rumination was entered on the first step of model, insecure attachment on the second and the interaction term (between insecure attachment and rumination) on the third. Post hoc regression analyses were run to investigate the independent roles of anxious-ambivalent attachment and avoidant attachment specifically. Analysis was conducted without gender as a factor, as preliminary results indicated no significant differences when gender was included in the analysis.

Results

Sample Characteristics

Descriptive statistics for rumination, attachment and emotion are presented in Table 1.2. No significant gender differences were identified for any of the variables. Cronbach alphas ranged from .72 to .91, indicating good reliability across each measure.

Table 1.2

Attachment, Rumination, Depressive Mood, Depressive Symptoms and Negative Emotion, by Gender, Study 1

	Males			Females				
Measure	*α*	*M*	*(SD)*	*α*	*M*	*(SD)*	*t*	*p*
Rumination	.91	44.84	(10.28)	.91	46.90	(10.70)	-1.182	.24
Insecure attachment	.72	57.63	(14.05)	.85	57.66	(15.94)	-0.014	.99
Anxious attachment	.81	31.14	(10.37)	.84	30.51	(10.67)	0.362	.72
Avoidant attachment	.80	26.49	(8.27)	.85	27.15	(9.46)	-0.442	.66
Depressed mood	.86	3.20	(3.35)	.89	4.18	(4.17)	-1.51	.13
Depressive symptoms	.70	13.39	(9.01)	.82	14.82	(10.40)	-0.864	.39
Shame	.87	15.39	(6.62)	.85	15.18	(6.67)	0.197	.84
Guilt	.86	9.12	(4.63)	.82	8.20	(4.13)	1.310	.19
Anger	.78	3.86	(4.15)	.80	3.15	(3.57)	1.166	.24

Note. $t(df) = 185$ in all cases.

The Association between Rumination and Negative Emotion, and Insecure Attachment and Rumination

Correlational analyses are reported in Table 1.3. As hypothesised, rumination was associated with negative emotion, with rumination significantly positively correlated with depressive mood, depressive symptoms, shame, guilt and anger. As can be seen in Table 1.3, the association between insecure attachment and rumination was also confirmed, with insecure attachment significantly positively correlated with rumination.

Table 1.3

Correlations Among Attachment, Rumination, Depressive Mood, Depressive Symptoms and Negative Emotion, Study 1

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
Rumination [1]	-	.44**	.43**	.24**	.48**	.53**	.44**	.39**	.39**
Insecure attachment [2]		-	.82**	.74**	.39**	.49**	.43**	.35**	.21**
Anxious attachment [3]			-	.22**	.37**	.46**	.39**	.31**	.13
Avoidant attachment [4]				-	.23**	.30**	.28**	.23**	.19**
Depressed mood [5]					-	.88**	.36**	.32**	.38**
Depressive symptoms [6]						-	.47**	.39**	.44**
Shame [7]							-	.58**	.36**
Guilt [8]								-	.29**
Anger [9]									-

Note. ** = $p < 0.01$.

The Contribution of Insecure Attachment and Rumination to Depressed Mood and Depressive Symptoms

Depressed mood. Table 1.4 displays the regression analysis predicting depressed mood from insecure attachment and rumination. In line with the hypothesis, the results in Table 1.4 indicate that the relationship between rumination and depressed mood was moderated by the presence of insecure attachment. Together, rumination and insecure attachment accounted for 26% of the variance in depressed mood.

Table 1.4

Contribution of Insecure Attachment and Rumination to Depressed Mood

Variable	R^2	*F*	Standardised *β*	*t*	*p*	*F* change
Model 1						
Rumination	.23	55.87	.48	7.48	< .01	.00
Model 2						
ISA	.15	33.55	.39	5.79	< .01	.00
Model 3						
Rumination	.27	34.39	.38	5.48	< .01	.00
ISA			.22	3.19	< .01	.00
Model 4						
1. Rumination	.30	26.03	.38	5.55	< .01	
ISA			.21	3.06	< .01	.00
2. ISA x Rumination			.17	2.66	.01	.01

Note. ISA = Insecure Attachment.

For illustrative purposes Figure 1.1 displays these findings by showing the mean depressive mood scores for 'high' and 'low' rumination and attachment groups. Participants' attachment and rumination scores were divided into a high scoring group and a low scoring group using a median split.[2] As can be seen in Figure 1.1, high rumination combined with high insecure attachment resulted in more severe depressive symptoms.

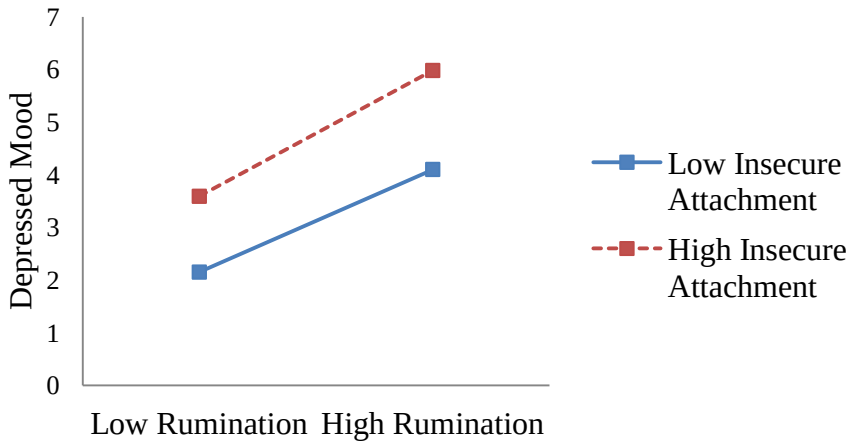


Figure 1.1. Mean depressed mood scores in prediction of depressed mood from insecure attachment and rumination

Depressive symptoms. Contrary to the hypothesis and to the findings for depressed mood, insecure attachment did not moderate the relationship between rumination and depressive symptoms. Instead, as can be seen in Table 1.5, for depressive symptomatology, the effects of insecure attachment and rumination were additive and independent. When entered on the same step of the analysis both variables accounted for 36% of the variance in depressive symptoms.

[2] AAQ: Individuals with a score of 56 or lower were placed into the Low Insecure Attachment group. Those with a score of 58 or higher were placed into the High Insecure Attachment group (the six individuals who fell on the median (57) were excluded). RSQR: Individuals with a score of 44 or lower were placed into the Low rumination group; those with a score of 46 or higher were placed into the High rumination group (the six individuals whose scores fell on the median (45) were excluded).

Table 1.5

Contribution of Insecure Attachment and Rumination to Depressive Symptoms

Variable	R^2	*F*	Standardised *β*	*t*	*p*	*F* change
Model 1						
Rumination	.28	72.08	.53	8.49	< .01	.00
Model 2						
ISA	.24	59.32	.49	7.70	< .01	.00
Model 3						
Rumination	.36	52.67	.39	5.92	< .01	.00
ISA			.32	4.92	< .01	.00
Model 4						
1. Rumination	.37	36.11	.39	5.94	< .01	
ISA			.32	4.83	< .01	.00
2. ISA x Rumination			.09	1.51	.13	.13

Note. ISA = Insecure Attachment.

The Contribution of Insecure Attachment and Rumination and to Negative Emotion

Shame. A similar pattern of results to those reported for depressive symptoms were found for shame (see Table 1.6). As can be seen in Table 1.6, contrary to the hypothesis, the interaction term (Insecure attachment x Rumination) was not significant in predicting shame (although there was a trend in this direction). When entered on the same step of the analysis, however, rumination and insecure attachment were found to be

significant predictors, accounting for 27% of the variance in shame scores. This suggests insecure attachment and rumination independently contribute to the experience of shame.

Table 1.6

Contribution of Insecure Attachment and Rumination to Shame

Variable	R^2	*F*	Standardised β	*t*	*p*	*F* change
Model 1						
Rumination	.19	44.48	.44	6.67	< .01	.00
Model 2						
ISA	.19	42.89	.43	6.55	< .01	.00
Model 3						
Rumination	.27	33.23	.31	4.40	< .01	.00
ISA			.30	4.23	< .01	.00
Model 4						
1. Rumination	.28	23.37	.31	4.41	< .01	
ISA			.29	4.13	< .01	.00
2. ISA x Rumination			.11	1.72	.09	.09

Note. ISA = Insecure Attachment.

Guilt. Table 1.7 displays the regression analysis predicting guilt from insecure attachment and rumination. Following the pattern established above, insecure attachment and rumination were not found to combine to be significant predictors of guilt. As can be seen in Table 1.7, however, both variables were significant independent predictors of guilt, accounting for 19% of the variance in guilt scores when entered onto the same step

of the regression model. This said, a possible trend for a potential moderating influence of insecure attachment on the relationship between rumination and guilt was suggested with the interaction term between insecure attachment and rumination marginally significant (p = .06).

Table 1.7

Contribution of Insecure Attachment and Rumination and to Guilt

Variable	R^2	F	Standardised β	t	p	F change
Model 1						
Rumination	.15	32.45	.39	5.70	< .01	.00
Model 2						
ISA	.12	25.27	.35	5.03	< .01	.00
Model 3						
Rumination	.19	21.30	.29	3.92	< .01	.00
ISA			.22	2.96	< .01	.00
Model 4						
1. Rumination	.20	15.55	.29	3.93	< .01	
ISA			.21	2.86	.01	.00
2. ISA x Rumination			.12	1.87	.06	.06

Note. ISA = Insecure Attachment.

Anger. The prediction of anger from rumination and attachment differed from the pattern of findings established with depressive symptoms, shame and guilt. As can be seen in Table 1.8, the interaction term (Rumination x Insecure attachment) was

significant, with the combination of both variables accounting for 17% of the variance in anger scores. In line with the hypothesis, this suggests that insecure attachment moderated the relationship between rumination and anger.

Table 1.8

Contribution of Rumination and Insecure Attachment to Anger

Variable	R^2	*F*	Standardised β	*t*	*p*	*F* change
Model 1						
Rumination	.15	32.13	.39	5.67	< .01	.00
Model 2						
ISA	.04	8.16	.21	2.86	.01	.01
Model 3						
Rumination	.15	16.18	.37	4.82	< .01	.00
ISA			.05	.60	.55	.55
Model 4						
1. Rumination	.17	12.71	.36	4.86	< .01	
ISA			.03	.45	.65	.00
2. ISA x Rumination			.15	2.25	.03	.03

Note. ISA = Insecure Attachment.

These findings are displayed visually in Figure 1.2 which has graphed the mean anger scores for both ‘high’ and ‘low’ rumination and attachment groups. As with depressed

mood, Figure 1.2 indicates that high rumination combined with high insecure attachment to create greater anger.

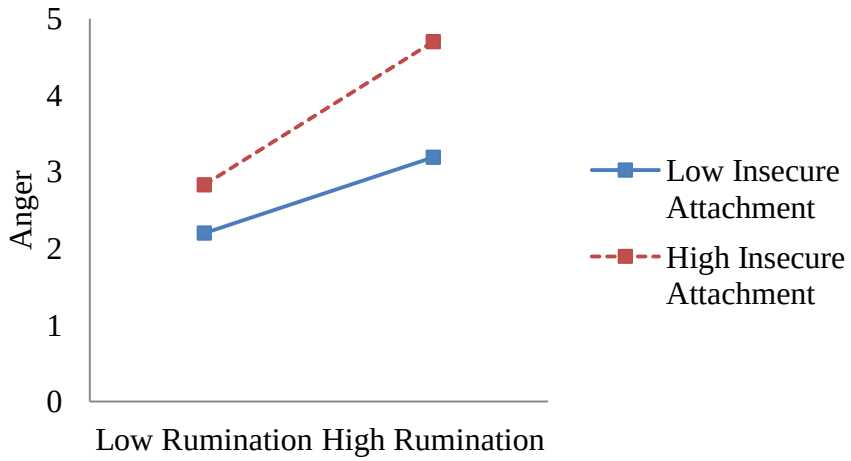


Figure 1.2. Mean anger scores in prediction of depressed mood from rumination and insecure attachment

The Contribution of Anxious-ambivalent Attachment and Rumination, and Avoidant Attachment and Rumination and to Negative Emotion

The regression analyses above have indicated that rumination and insecure attachment either moderate or independently accounted for a significant amount of variance in the experience of depressive mood, depressive symptoms, shame, guilt, and anger. Where results indicated a main effect of insecure attachment post hoc analyses were undertaken to determine whether it was insecure attachment in general that was a risk factor for negative emotion or whether the result was better explained by anxious-ambivalent attachment or avoidant attachment specifically.

Anxious-ambivalent attachment. As can be seen in Tables 1.9 and 1.10, anxious-ambivalent attachment and rumination independently predict depressed mood

and depressive symptoms, with both factors accounting for 23% and 33 % of the variance in depressed mood scores and depressive symptom scores respectively. Similarly, Table 1.11indicates anxious-ambivalent attachment and rumination independently accounted for 20% of the variance in shame.

When predicting guilt from anxious-ambivalent attachment and rumination a moderating effect was identified, with rumination and attachment combined accounting for 20% of the variance in guilt (see Table 1.12). In contrast, as can be seen in Table 1.13, anxious-ambivalent attachment and rumination were not significant predictors of anger. Furthermore, when entered on the same step of the regression analyses, anxious-ambivalent attachment and rumination were not found to be independent predictors of anger.

Table 1.9

Multiple Regression Analyses Predicting Depressed Mood from Anxious-ambivalent Attachment and Rumination

Variable	R^2	*F*	Standardised *β*	*t*	*p*	*F* change
Model 1						
Rumination	.23	55.87	.48	7.48	< .01	.00
Model 2	.14	30.38	.38	5.51	< .01	.00
Anx Attach						
Model 3						
Rumination	.27	33.44	.39	5.61	< .01	
Anx Attach			.21	2.95	.04	.00
Model 4						
1. Rumination	.27	23.01	.40	5.72	< .01	
Anx Attach			.20	2.83	.01	
2. Anx Attach x Rumination			.09	1.36	.18	.18

Note. Anx Attach = Anxious ambivalent Attachment.

Table 1.10

Multiple Regression Analyses Predicting Depressive Symptoms from Anxious-ambivalent Attachment and Rumination

Variable	R^2	*F*	Standardised *β*	*t*	*P*	*F* change
Model 1						
Rumination	.28	72.08	.53	8.49	< .01	.00
Model 2						
Anx Attach	.21	49.05	.46	7.00	< .01	.00
Model 3						
Rumination	.34	48.48	.41	6.17	< .01	
Anx Attach			.28	4.26	< .01	.00
Model 4						
1. Rumination	.34	32.18	.41	6.16	< .01	
Anx Attach			.28	4.22	< .01	
2. Anx Attach x Rumination			.12	2.6	.79	.79

Note. Anx Attach = Anxious-ambivalent Attachment.

Table 1.11

Multiple Regression Analyses Predicting Shame from Anxious-ambivalent Attachment and Rumination

Variable	R^2	*F*	Standardised *β*	*t*	*p*	*F* change
Model 1						
Rumination	.19	44.48	.44	6.67	< .01	.00
Model 2						
Anx Attach	.15	33.00	.40	5.75	< .01	.00
Model 3						
Rumination	.24	29.47	.34	4.71	< .01	
Anx Attach			.25	3.44	< .01	.00
Model 4						
1. Rumination	.23	19.83	.34	4.75	< .01	
Anx Attach			.24	3.36	< .01	
2. Anx Attach x Rumination			.05	.82	.42	.42

Note. Anx Attach = Anxious-ambivalent Attachment.

Table 1.12

Multiple Regression Analyses Predicting Guilt from Anxious-ambivalent Attachment and Rumination

Variable	R^2	*F*	Standardised *β*	*t*	*p*	*F* change
Model 1						
Rumination	.15	32.45	.39	5.70	< .01	.00
Model 2						
Anx Attach	.10	19.74	.31	4.44	< .01	.00
Model 3						
Rumination	.18	19.48	.31	4.18	< .01	
Anx Attach			.18	2.38	.02	.02
Model 4						
1. Rumination	.20	14.91	.32	4.39	< .01	
Anx Attach			.16	2.21	.03	
2. Anx Attach x Rumination			.15	2.23	.03	.03

Note. Anx Attach = Anxious-ambivalent Attachment.

Table 1.13

Multiple Regression Analyses Predicting Anger from Anxious-ambivalent Attachment and Rumination

Variable	R^2	*F*	Standardised *β*	*t*	*p*	*F* change
Model 1						
Rumination	.15	32.13	.39	5.67	< .01	.00
Model 2						
Anx Attach	.02	3.30	.13	1.82	.07	.07
Model 3						
Rumination	.15	16.15	4.0	5.34	< .01	
Anx Attach			-.04	-.54	.59	.59
Model 4						
1. Rumination	.15	10.94	.40	5.25	< .01	
Anx Attach			-.04	-.48	.64	
2. Anx Attach x Rumination			-.05	-.76	.45	.45

Note. Anx Attach = Anxious-ambivalent Attachment.

Avoidant attachment. Regression analyses predicting depressive mood, depressive symptoms, shame, guilt and anger from avoidant attachment and rumination are presented in Tables 1.14, 1.15, 1.16, 1.17, and 1.18 respectively. As can be seen in Table 1.14, avoidant attachment was found to moderate the relationship between rumination and depressed mood. This same finding was not evidenced for depressive symptoms. Instead, as can be seen in Table 1.15, avoidant attachment and rumination

were found to independently contribute to depressive symptoms, accounting for 31% of the variance in depressive symptom scores. This said, the interaction term (Avoidant attachment x Rumination) was marginally significant (p = .07), indicating a trend towards avoidant attachment moderating the relationship between rumination and depressive symptoms.

In regards to shame and guilt (Tables 1.16 and 1.17 respectively), avoidant attachment and rumination were not found to combine to predict either variable. Instead, the contribution of rumination and avoidant attachment to shame and guilt was to be independent, with both variables accounting for 23% of the variance in shame, and 17% of the variation in guilt when entered onto the same step of the regression analyses. In contrast, as can be seen in Table 1.18, the interaction term (Rumination x Avoidant attachment) was significant for anger, accounting for 23% of the variance in anger scores.

Table 1.14

Multiple Regression Analyses Predicting Depressed Mood from Avoidant Attachment and Rumination

Variable	R^2	*F*	Standardised β	*t*	*P*	*F* change
Model 1						
Rumination	.23	55.87	.48	7.48	< .01	.00
Model 2						
Avo Attach	.05	10.00	.23	3.16	< .01	.00
Model 3						
Rumination	.24	29.80	.45	6.86	< .01	
Avo Attach			.12	1.76	.08	.00
Model 4						
1. Rumination	.27	22.39	.44	6.72	< .01	
Avo Attach			.11	1.62	.11	
2. Avo Attach x Rumination			.16	2.44	.02	.02

Note. Avo Attach = Avoidant Attachment.

Table 1.15

Multiple Regression Analyses Predicting Depressive Symptoms from Avoidant Attachment and Rumination

Variable	R^2	*F*	Standardised β	*t*	*P*	*F* change
Model 1						
Rumination	.28	72.08	.53	8.49	< .01	.00
Model 2						
Avo Attach	.09	18.52	.30	4.30	< .01	.00
Model 3						
Rumination	.31	41.74	.49	7.69	< .01	
Avo Attach			.18	2.91	< .01	.00
Model 4						
1. Rumination	.32	29.23	.48	7.56	< .01	
Avo Attach			.18	2.81	.01	
2. Avo Attach x Rumination			.11	1.79	.07	.07

Note. Avo Attach = Avoidant Attachment.

Table 1.16

Multiple Regression Analyses Predicting Shame from Avoidant Attachment and Rumination

Variable	R^2	*F*	Standardised *β*	*t*	*p*	*F* change
Model 1						
Rumination	.19	44.48	.44	6.67	< .01	.00
Model 2						
Avo Attach	.08	15.96	.28	3.40	< .01	.00
Model 3						
Rumination	.23	26.90	.40	5.91	< .01	
Avo Attach			.19	2.78	.01	.01
Model 4						
1. Rumination	.24	18.93	.39	5.78	< .01	
Avo Attach			.18	2.68	.01	
2. Avo Attach x Rumination			.10	1.60	.11	.11

Note. Avo Attach = Avoidant Attachment.

Table 1.17

Multiple Regression Analyses Predicting Guilt from Avoidant Attachment and Rumination

Variable	R^2	*F*	Standardised *β*	*t*	*p*	*F* change
Model 1						
Rumination	.15	32.45	.39	5.70	< .01	.00
Model 2						
Avo Attach	.05	9.93	.23	3.15	< .01	.00
Model 3						
Rumination	.17	18.53	.35	5.08	< .01	
Avo Attach			.14	2.02	.05	.05
Model 4						
1. Rumination	.17	12.39	.35	5.01	< .01	
Avo Attach			.14	1.98	.05	
2. Avo Attach x Rumination			.04	.51	.61	.61

Note. Avo Attach = Avoidant Attachment.

Table 1.18

Multiple Regression Analyses Predicting Anger from Avoidant Attachment and Rumination

Variable	R^2	*F*	Standardised *β*	*t*	*p*	*F* change
Model 1						
Rumination	.15	32.13	.39	5.67	< .01	.00
Model 2						
Avo Attach	.04	7.20	.19	2.68	.01	.01
Model 3						
Rumination	.16	17.34	.36	5.15	< .01	
Avo Attach			.11	1.52	.13	.13
Model 4						
1. Rumination	.23	18.49	.34	5.00	< .01	
Avo Attach			.09	1.32	.19	
2. Avo Attach x Rumination			.27	4.20	< .01	.00

Note. Avo Attach = Avoidant Attachment.

Summary and Discussion

This study investigated the relationship between rumination and depressive mood, depressive symptoms, shame, guilt, and anger. It also explored the contribution of attachment style as a possible factor that may be both associated with rumination, and strengthen the relationship between rumination and emotion.

Broader Emotional Consequences of Rumination

The initial hypothesis that rumination was associated with greater levels of depressive mood and depressive symptoms was supported. These findings are in line with the literature which has established a strong relationship between rumination and depressive symptoms (Nolen-Hoeksema & Morrow, 1991; Nolen-Hoeksema et al., 2008).

Results also confirmed the proposal that rumination would be significantly associated with higher levels of shame, guilt, and anger. Findings for shame and anger were in line with previous research (Joireman, 2004; Orth et al., 2006). Results for guilt were in contrast to the findings of Joireman (2004) and Orth et al. (2006). One possible reason for this difference may be that the relationship between rumination and guilt is not as strong as the relationship between rumination and shame or anger. Therefore findings regarding rumination and guilt may be more variable. Future research would be needed to examine this possibility.

Overall, the above findings increase our understanding of rumination by contributing further support to the argument that the consequences of ruminative thought are broader than initially hypothesised in the literature. That is, rather than being viewed as a cognitive mechanism that specifically affects depressed mood and depressive symptoms, it would appear that rumination also has consequences for the emotions of shame, guilt and anger. This in turn, provides further support for the proposal by Rusting and Nolen-Hoeksema (1998) and Thomsen et al. (2003) that just as occurs when one experiences depressive symptoms, when other emotions arise during the process of ruminating, the node for that emotion in one's associative network (Bower., 1981) will be activated. In turn, as it does for depressive symptoms, ruminative thought will heighten this emotion by

continuing to draw one's attention to the cognitive thoughts and schemas stored with the emotion in memory. Further, as for depressive symptoms, rumination would also increase this emotion by interfering with the process of effective problem solving and by inhibiting behaviour that could provide a brief release from the emotion.

Contribution of Attachment Style to Rumination

It was expected that individuals with an insecure attachment would experience greater levels of rumination. The current findings support this hypothesis. These findings are in line with the literature which has also found insecure attachment and rumination to be related (Margolese et al., 2005; Nolen-Hoeksema & Jackson, 2001; Saffrey & Ehrenberg, 2007). Thus it would appear that there is something unique to the internal working model of insecure as opposed to secure individuals which encourages the use of rumination as strategy for regulating emotion. Several possible mechanisms explaining this association were noted in Chapter 1. These included the possibly that insecurely attached individuals engage in rumination as it: 1) did not require them to rely on the assistance of others to regulate their emotion, 2) validated their IWM by continuously bringing to mind evidence that supported their view of the world, and 3) provided them with a strategy to explore their negative beliefs about their own self worth and the reliability of others (Mikulincer & Florian, 1998, 2004; Saffrey & Ehrenberg, 2007).

Contribution of Attachment Style and Rumination to Negative Emotion

Depressed mood and depressive symptoms. Results indicated that the strength of the relationship between rumination and depressed mood was significantly influenced by insecure attachment. Post-hoc analyses suggested this finding may largely be accounted for by avoidant attachment, which in contrast to an anxious-ambivalent

attachment style was also found to moderate the relationship between rumination and depressed mood. In contrast, the contribution of insecure attachment and rumination to depressive symptoms was found to be independent. Similarly, the contribution of avoidant attachment and anxious-ambivalent attachment, along with rumination, was also found to be independent.

The significant contribution of insecure attachment for depressed mood, but not depressive symptoms, suggests the influence of attachment on rumination and its negative consequences is strongest for sadness specifically. This is because depressed mood was defined as feelings of sadness, while depressive symptoms encompassed a broader range of variables (cognitive, emotional, and behavioural aspects of depression). Given the framework of associative network theory, it may be that insecure attachment had a greater impact on the relationship between rumination and depressed mood due to depressed mood's direct link to a specific emotion node (sadness). Another possible contributor to the difference between findings for depressed mood and depressed symptoms was the fact that depressed mood was positively skewed and could not be transformed to fit a normal distribution. This likely resulted in a greater intensity of reported mood (as compared to depressive symptoms) that may, in turn, have influenced the strength of the relationship amongst insecure attachment, rumination and depressed mood. Supporting this, previous research has identified a stronger relationship between rumination and depressive symptoms in individuals with higher levels of depressed mood (McLaughlin et al., 2007).

Shame. Insecure attachment, anxious-ambivalent attachment and avoidant attachment, along with rumination, were all found to independently contribute to heightened feelings of shame. While no previous research has look at the combined effect

of these two variables on shame, results are in line with the literature which has indicated a unique relationship between rumination and shame (Cheung et al., 2004) and insecure attachment and shame (Wagner & Tangney, 1991).

Guilt. Insecure attachment and rumination were found to independently contribute to the experience of guilt. This said, a trend in the data was noted towards the relationship between rumination and guilt being strengthened by the presence of insecure attachment (p = .06). Post-hoc analysis suggested this marginal finding may be due to an anxious-ambivalent attachment (but not avoidant attachment) which also moderated the relationship between rumination and guilt. As noted previously, the two studies in the literature that have looked at the association between rumination and guilt suggested that these variables were weakly related (Joireman, 2004; Orth et al., 2006). The current findings are therefore notable as they highlight the role attachment style may play in strengthening this relationship. Several possible mechanisms behind this relationship are noted. First, individuals with an anxious-ambivalent attachment have been shown to adopt a clingy, hypervigilant approach to stress (Ein-Dor et al., 2011; Fraley & Shaver, 2000; Mikulincer & Florian, 1998). This hypervigilance may both encourage rumination and provide one with more information to ruminate on. Kramer (1998), for example, reported that hypervigilance provided "raw data" for rumination. In turn, Kramer (1998) also noted rumination generated worries that encouraged a more vigilant awareness. Second, as noted previously, the IWM of anxious-ambivalent individuals contains a world view where a connection with others is desired yet felt to be undeserved (Hazan & Shaver, 1987). It is therefore likely that this negative self view may result in a greater intensity of guilt when feeling remorseful. Third, in line with response style theory which states that ruminating on one's mood results in the amplification of that mood (Nolen-Hoeksema,

1991), it is suggested that the increased intensity of guilt that anxious-ambivalent individuals may already be feeling could be further intensified by rumination. In contrast, the self-confidence and trust in others that comes from a more secure attachment style (Shaver et al., 2007) may allow an individual to take a more adaptive approach; where guilt might motivate and provide an individual with the confidence needed to make amends and resolve the situation they feel guilty about (Orth et al., 2006).

Anger. Insecure attachment significantly strengthened the relationship between rumination and anger. Post hoc analysis suggested that this was likely due to the influence of avoidant attachment which was also found to moderate the relationship between rumination and anger. An anxious-ambivalent attachment style was not found to contribute at all to the association between rumination and anger. One possible reason for the importance of avoidant attachment identified here may be avoidantly attached individuals' greater mistrust of others and independent style of coping (Mikulincer & Florian, 1998) which may combine with ruminative thinking to hold the individual in a pattern of negative thought that continues to fuel their angry feelings, without the presence of an additional person to provide distraction from, or support them with their feelings of anger.

Limitations

There are limitations of this study that need to be acknowledged. Firstly, because the population of the study was university students, findings may not generalise to other samples. However, as noted in the literature review in Chapter 1, research has indicated the association between rumination and depressive symptomatology (Abela & Hankin, 2011; Nolen-Hoeksema & Jackson, 2001), and rumination and shame, guilt and anger has

been found in other populations (Balsamo, 2010; Orth et al., 2006; Orth et al., 2008), suggesting results are likely to generalise. A second limitation is that this study is based on data from cross-sectional self-report questionnaires. While this has provided a good first step in both confirming and identifying the specific relationships amongst rumination, attachment and emotion, future findings could be enhanced by research examining the relationship amongst these variables in an experimental setting so cause and effect can be examined. Third, a possible dependency in the data between emotions is noted with individuals who reported experiencing sadness, for example, possibly also experiencing feelings of shame. The current study did not control for this dependency because each emotion was assessed individually and because the experience of all emotion likely contains possible overlap with other emotions. Future studies could account for dependency by choosing to control for various emotions. Lastly, rumination, as referred to in this chapter, was defined by Nolen-Hoeksema's definition that rumination is a pattern of repetitive thinking that focused an individual's attention on their depressed mood, and its possible causes, consequences and meanings (Nolen-Hoeksema, 1991). As noted in the review of the literature in Chapter 1, rumination, may also be defined more broadly as repeatedly replaying past events with a focus on performance, what was said, the emotions that were experienced, and why they acted as they did (Trapnell & Campbell, 1999). It would be interesting for future research to measure rumination using a more general definition, and to test whether the consequences of rumination identified here still hold. This may be particularly important given Nolen-Hoeksema's (1991) Response Style Questionnaire (RSQ-R) has been criticised for containing several items that overlap with depressive symptoms, raising the possibility that its relationship with depressive symptoms is due to this overlap and not rumination itself (Treynor et al., 2003). Additionally, as noted in the previous chapter, a change in how rumination is

defined would allow the broader consequences of rumination to be more thoroughly investigated. McLaughlin, Borkovec, and Sibrava (2007) support this move, noting that looking at rumination more generally allows researchers to study the consequences of rumination on emotion in those individuals who are not already experiencing low mood (as it does not require them to possess current depressive emotions to ruminate on). Given these limitations, and the fact that this thesis aimed to continue to explore the broader consequences of rumination, a shift will be made for the remaining studies, with Trapnell and Campbell's (1999) definition used to measure rumination from now on.

Future Research

Several avenues for future research are indicated. In the present study the relationship amongst attachment, rumination and negative emotion in general (level over the past week) was investigated. While results largely indicated an independent contribution of insecure attachment and rumination to the consequences of emotion in this setting, it is possible that different contextual factors may have contributed to this association. Margolese et al. (2005), for example, noted that individuals may engage in rumination in particular situation or when faced with a particular kind of stress. Given one of the aims of this thesis is to explore specific contributors to rumination, it would therefore appear that in order to further our understanding of the association between insecure attachment, rumination, and emotion, the next step would be to look at these variables in regards to a specific context. Given the role attachment style plays in shaping interpersonal relationships (Hazen & Shaver; 1987; Simpson & Rholes, 2010) and that a further aim of this thesis was to explore the interpersonal consequences of rumination, it is thought that the best context to explore would be that of a romantic relationship. Such a study could extend the work of Saffrey and Ehrenberg (2007) and Burnette, Taylor, Worthington, and

Forsyth (2007) who both asked about rumination in regards to a specific event. Saffrey and Ehrenberg (2007), for example, asked participants who had just ended a relationship about the degree to which they ruminated on this relationship. Similarly, Burnette et al. (2007) asked participants about angry rumination (the degree to which they responded with an angry response following an interpersonal offence). In regards to the current study, future research could ask about rumination on a specific event involving a romantic partner. This will be explored in Study 2.

Summary

Overall, this study has highlighted the broad emotional consequences of rumination for the individual, the association between insecure attachment and rumination, and the contribution of attachment style to the relationship between rumination and depressive symptoms, shame, guilt, and anger. Results contribute to the literature by showing that rumination affects not just depressive symptoms but also shame, guilt, and anger. In addition, results extend the literature by highlighting the contribution of insecure attachment both to the tendency to ruminate, and to the relationship between rumination and emotion. Within this, anxious-ambivalent attachment may be a specific risk factor for guilt, while avoidant attachment may be specific risk factor for depressed mood and anger.

Chapter 3

The Emotional and Interpersonal Consequences of Ruminating on a Romantic Relationship

---

The aim of Study 2 was to further our understanding of rumination by exploring the contributing influence of the context in which rumination occurs, as well as the contribution of insecure attachment. In doing this, rumination that was specifically focused on thinking about a negative relationship event was examined. It was also aimed to continue to investigate the broader consequences of rumination by exploring the effect rumination has on an individual's interpersonal feelings, as well as their emotions. In this chapter the rationale for examining rumination in the context of a romantic relationship will be described. Literature reviewed in Chapter 1 regarding the interpersonal consequences of rumination and insecure attachment will then be briefly summarised, and the findings of Study 2 presented and discussed.

Why Investigate Rumination in a Specific Context?

It has been suggested in the literature that the use of rumination may be context specific (Margolese et al., 2005; Wade et al., 2008). That is, rather than rumination being used as a strategy to regulate all emotion, an individual may choose to ruminate in some contexts and not in others. Supporting this proposal, Margolese et al. (2005) found adolescents used rumination to help them manage the stress they experienced in the context of a romantic relationship, but not the stress they experienced in the context of a friendship or with their parents. This finding is in line with the emotion regulation literature described in Chapter 1, with Gross and Thompson (2007) noting that how an individual chose to regulate their emotion would differ according to their goals for a specific situation.

In order to fully understand the consequences of rumination, it would therefore appear that research would benefit from considering the context in which ruminative thought occurs. This is because a focus on rumination more broadly may result in the unique consequences of rumination in specific contexts being missed. As evidence of this, Saffrey and Ehrenberg (2007) compared the consequences of general rumination (tendency to ruminate about many events) and relationship rumination (ruminating on a recent relationship breakup) in a sample of students who had ended a relationship in the past 12 months. Results indicated that while both types of rumination were significantly correlated with general distress and relationship specific distress, slight differences in the strength of these relationships were present. General rumination *fully* mediated the relationship between anxious-ambivalent attachment and general negative adjustment (negative feelings when thinking about past relationship), while relationship specific rumination *partially* mediated the association between anxious-ambivalent attachment and relationship related negative adjustment (Saffrey & Ehrenberg, 2007).

Why look at Rumination in the Context of a Romantic Relationship?

The findings of Study 1 highlighted the contribution of insecure attachment to rumination. This, combined with the significant role attachment has been noted to play in the shaping and maintaining of individuals' relationships (Bowlby, 1973; Shaver et al., 1996), suggests that exploring rumination in the context of a close relationship would be important. Given that one of the most significant relationships adults develop is that with a romantic partner, it was decided to explore rumination in the context of a romantic relationship.

There are a number of additional reasons as to why it was felt that exploring rumination in the context of a romantic relationship may be important. Firstly, according to evolutionary theory, romantic relationships are essential, with all humans believed to possess an inner drive to find a mate and pair up so that they may reproduce to ensure the survival of their species (Buss, 2005). The literature reviewed in Chapter 1 indicated emotions play a significant role in facilitating and maintaining these bonds (Gross, 1999; Kring & Werner, 2004). Exploring the consequences of specific emotion regulation strategies in this context would therefore appear beneficial in helping contribute to education around effective and less effective strategies to engage in, in this context. Secondly, the reviewed literature indicated that interpersonal relationships often give rise to strong emotion (Gross, 1998; Gross & Thompson, 2007). When regulated well, this emotion has a positive effect on an individual's psychological well-being and feelings of life satisfaction (Myers & Diener, 1995). When regulated poorly it negatively impacts well-being. As evidence of this, Whisman (2001) noted marital dissatisfaction accounted for 44 % of the variance in depressive scores. Similarly, Whiffen, Kallos-Lilly, and MacDonald (2001), found interpersonal distress was strongly associated with depression. Depression, in turn, was associated with greater emotional and interpersonal difficulties. As noted above, understanding the role of specific emotion regulation strategies in this context would be beneficial as such information could help inform couples of the different consequences of different strategies.

Summary of the Literature on Rumination and Romantic Relationships

Literature reviewed in Chapter 1 indicated limited research investigating the consequences of ruminating on romantic relationships. Some interpersonal consequences that are associated with rumination have been identified. As noted previously, Margolese

et al. (2005), reported adolescents were more likely to ruminate after reading an interpersonal interaction that involved their romantic partner, as compared to an interaction that involved their mother, father or best friend. General rumination has been found to be associated with greater levels of relationship related distress and difficulties (Jostmann et al., 2011; Lam et al., 2003; Williams, 2008). Relationship specific rumination (ruminating on past or current romantic relationships) has been found to be associated with lower levels of trust (Carson & Cupach, 2000) and forgiveness (Paleari et al., 2005), and higher levels of jealously (Bevan, 2006; Lavallee & Parker, 2009), possessive manipulation (Carson & Cupach, 2000), stalking (Cupach & Spitzberg, 2004), vengefulness (McCullough et al., 2001) and negative adjustment after a relationship break-up (Saffrey & Ehrenberg, 2007).

Summary of the Literature on Attachment and Romantic Relationships

Chapter 1 highlighted several interpersonal consequences of insecure attachment. An anxious-ambivalent attachment style, for example, is thought to be associated with greater anxiety and hostility towards a partner when discussing a conflict (Bouthillier et al., 2002; Simpson et al., 1996). Anxious-ambivalence has also been associated with greater relationship instability, lower levels of trust, and increased security seeking behaviour (Hazan & Shaver, 1987; Simpson & Rholes, 2010; Simpson et al., 1996; Treboux et al., 2004). An avoidant attachment style, on other hand, is thought to be associated with less relationship warmth, less support of a partner, and lower levels of problem solving while discussing a conflict (Bouthillier et al., 2002; Simpson et al., 1996). Furthermore, individuals with an avoidant attachment have been found to experience greater defensiveness, and lower levels of commitment and satisfaction in relationships (Hazan & Shaver, 1987; Treboux et al., 2004).

Study 2

The aim of Study 2 was to extend Study 1 by investigating the negative emotional consequences of rumination in the specific context of a romantic relationship (as opposed to looking at rumination generally). Study 2 also aimed to extend Study 1 by investigating the broader consequences of rumination on relationship satisfaction, relationship closeness, and negative feelings about the relationship. In looking to consolidate the findings of Study 1, the contribution of attachment to the association between rumination, negative emotion, and negative interpersonal factors was also explored. Limited research has investigated the interpersonal consequences of rumination and the role of insecure attachment in contributing to the relationship between rumination and negative interpersonal variables. Given the interpersonal consequences of attachment noted previously, and that attachment style plays an integral role in influencing the formation of social bonds, it was felt that the contribution of attachment to the interpersonal consequences of rumination was important to consider.

An experimental design was employed to investigate study aims. To examine rumination experimentally, researchers typically use a variation of Nolen-Hoeksema and Morrow's (1991) response manipulation task, which compares a rumination condition to a distraction condition. As noted previously, response style theory suggests that in doing this, individuals who ruminate will experience an exacerbation of their mood, while those who distract will experience a decrease in their mood (Nolen-Hoeksema., 1991). The literature reviewed in Chapter 1 and 2 indicated that the majority of studies have utilised cross-sectional designs when exploring the consequences of rumination. As yet, no study has used an experimental design to explore the relationship amongst attachment, rumination, negative emotion and interpersonal feelings.

Hypotheses

Three hypotheses were proposed. Firstly, it was proposed that individuals who ruminated on a negative relationship event would experience greater levels of negative emotion than individuals who distracted. Secondly, it was proposed that individuals who ruminated on a negative relationship event would experience lower levels of relationship satisfaction and relationship closeness, and higher levels of negative feelings about the relationship than individuals who distracted themselves. Lastly, it was hypothesised that attachment would moderate the relationship between rumination and negative interpersonal consequences. Individuals with an insecure attachment who ruminated on a negative relationship event were expected to experience greater levels of negative emotion and negative feelings about the relationship, and lower levels of relationship satisfaction and relationship closeness than securely attached individuals who also ruminated on a negative relationship event.

Method

Participants

Two hundred and thirty eight students from the University of Canterbury who were currently in, or had recently been involved in, a heterosexual romantic relationship volunteered to participate in this study. All students were recruited via the Psychology Department's participant pool, emails advertising the study to Psychology course lists, and posters placed in several departments and lecture halls (see Appendix F). Study participants from the participant pool received 2% towards their course credit, while those who were not part of the participant pool received a $10.00 gift voucher to compensate them for their time. Table 2.1 summarises the demographic characteristics of this sample. As can be seen in Table 2.1, the average age of female participants was 21 years, and the

average age of male participants was 24 years. The sample was primarily New Zealand European (69.3%). The remaining participants were European (5.9%), New Zealand European and Maori (4.2 %), Chinese (3.4%), South East Asian (3.4%), New Zealand European and Pacific Islander (2.1%), Maori (0.8%), Indian (1.3%), Pacific Islander (0.4%), and other ethnicities (9.2%). Approval for this study was given by the University of Canterbury Human Ethics Committee (HEC ethics application number 2009/43).

Table 2.1

Sample Characteristics, Study 2

Variable	Males Mean (*SD*) or *N* (%)	Females Mean (*SD*) or *N* (%)
Sample Number	69 (28.99%)	169 (71.01%)
Mean age (years)	24.00 (8.62)	21.34 (5.25)
Age range (years)	17-60	17-46
Ethnicity (Percentage of sample is indicated in parentheses)		
New Zealand European	48 (69.6)	117 (69.2)
Maori	1 (1.4)	1 (0.6)
New Zealand European and Maori	1 (1.4)	9 (5.3)
Pacific Islander	0 (0.0)	1 (0.6)
New Zealand European and Pacific Islander	2 (2.9)	3 (1.8)
European	8 (11.6)	6 (3.6)
Chinese	3 (4.3)	5 (3.0)
South East Asian	1 (1.4)	7 (4.1)
Indian	0 (0.0)	3 (1.8)
Other	5 (7.2)	1 7 (10.1)
Present Relationship status (Percentage of sample is indicated in parentheses)		
In a relationship (not living with partner)	35 (50.7)	97 (57.4)
In a relationship (living with partner)	25 (36.2)	40 (23.7)
Currently single but recently in relationship	9 (13.0)	32 (18.9)

Design

This study had two phases: a cross-sectional survey phase and an experimental phase. First, participants completed an online questionnaire. The purpose of this questionnaire was to assess participants' general levels of rumination, their attachment style and current levels of depressive symptomatology. These variables were assessed ahead of time so that the process of gathering this information did not influence responses for the second part of this study.

The second part of this study involved a 2 (type of event: negative, typical) x 2 (type of response style: rumination, distraction) experimental design, with emotion measured before and after the experimental task. Participants were randomly assigned to either think about a negative or typical relationship event for two minutes[3]. Participants were then randomly assigned to either ruminate on this event, or to distract by listing all the places in New Zealand of which they could think for a further eight minutes. The event manipulation used here was based on the work of Fernando (2006) and Watkins (2004). The response manipulation was based on the work of Fernando (2006) and Nolen-Hoeksema and Morrow (1991, 1993) and Watkins (2004).[4]

This study measured five dependent variables. Two variables assessed emotional outcomes: overall mood and negative emotion. Three variables assess interpersonal outcomes: relationship satisfaction, relationship closeness, and negative feelings about the relationship. All of these variables were measured both before and after the experimental section of the study noted above.

[3] The intention of this manipulation was to confirm whether it was rumination alone that was negative, or rumination on a negative event only that was negative.

[4] Advice on this format was obtained by email correspondence with Susan Nolen-Hoeksema and Ed Watkins (01/06/09).

On completion of the study, all participants were asked to ruminate on a positive relationship event. This event was not part of the experimental design and not measured. Instead it followed the example of Holland and Roisman (2010) who included this task to ensure all participants left the study feeling positive about their relationship.

Measures

Phase 1. Online questionnaire. This questionnaire consisted of demographic questions that asked participants to report their age, gender, ethnicity and current relationship status. The online questionnaire also included measures of attachment style, rumination, emotion, and interpersonal feelings. As with Study 1, the Adult Attachment Questionnaire (AAQ; Simpson et al., 1996) was used to assess attachment style, and the Centre for Epidemiological Studies - Depression Questionnaire (CES-D; Radloff, 1977) to measure depressive symptoms.

Rumination. Rumination was assessed with Trapnell and Campbell's (1999) *Rumination and Reflection Scale* (RRQ). The RRQ consists of two subscales: a rumination subscale ("I tend to 'ruminate' or dwell over things that happen to me for a really long time afterward), and a reflection subscale (I love exploring my 'inner' self). Participants rated the extent to which they agreed with each of the RRQ's 12 rumination items on a scale anchored 1(*strongly disagree*) to 5(*strongly agree*). Total scores ranged from 1 to 5, with higher scores indicating greater levels of rumination. The RRQ rumination scale has high internal reliabilities (α = .90) and good convergent and discriminate validity (Trapnell & Campbell, 1999). The mean response on the rumination scale in Trapnell and Campbell's (1999) sample of college students was 3.48 (*SD* .71) for

females and 3.42 (*SD* .71) for males. No gender differences in the scoring of rumination were identified (Trapnell & Campbell, 1999).

Relationship quality. The quality of participants' relationships was assessed using the *Quality of Relationships Inventory* (QRI; Pierce, Sarason, & Sarason, 1991). The QRI consists of three subscales that measure the perceived availability of social support (e.g. "to what extent can you turn to this person for advice about a problem"), the importance/depth of the relationship (e.g. "how significant is this relationship in your life"), and the extent to which the relationship is a source of conflict or ambivalence (e.g. "how often does this person make you feel angry"). Participants rated the degree to which each of the QRI's 29 items applied to them and their relationship on a four point likert scale ranging from 1 (*not at all*) to 4 (*very much* ; Pierce, Sarason, Sarason, & Solky-Butzel, 1997). The QRI has high internal consistency and good reliability with alphas across two studies of university students ranging from .70to .91 (Pierce et al., 1991; Pierce et al., 1997). It has also been shown to have long term reliability with scores remaining stable over the course of a year. The QRI also has good construct validity, predicting levels of loneliness and displaying moderate agreement between two individuals, perceptions of the same relationship (Pierce et al., 1997).

Phase 2. Measures completed before and after the experimental task.

Overall mood rating. Participants indicated their current level of overall mood on a visual analogue scale ranging from *I feel very sad* (0%) to *I feel very happy* (100%).

Negative emotion. Mayer and Gaschke's (1988) Brief Mood Introspection Scale (BMIS) was used to measure mood before and after the experimental manipulation. This scale consists of 16 mood items assessing eight emotional states (happy, loving, calm, energetic, fearful/anxious-ambivalent, angry, tired, and sad). Participants were asked to rate how well each adjective or phrase described their current mood ("right now") using a 7 point likert scale anchored from 1 (*definitely do not feel*) to 7 (*definitely feel*). For the current study, negative emotional items from this scale (fearful/anxious-ambivalent, angry, tired and sad) were summed and averaged to form a negative emotion subscale. Total scores on this subscale ranged from 1 to 7. In their sample of university students, Mayer and Gaschke (1988) reported the negative emotion subscale of the BMIS had good validity and reliability (α ranged from .76 to .80 across their studies).

Relationship satisfaction. Relationship satisfaction was assessed using Fletcher, Simpson and Thomas's (2000) Perceived Relationship Quality Components (PRQC) Inventory. The original PRQC consists of 18 items measuring six relationship components (satisfaction, trust, commitment, intimacy, love, and passion). Participants are asked three questions about each component. Fletcher et al. (2000) demonstrated that the PRQC loaded well onto one general factor reflecting overall perceived relationship quality, as well as six second order factors. Following Fletcher, et al.'s (2000) recommendation, the current study used the 6 item version of the PRQC as a global measure of relationship quality. Participants were asked to indicate how they felt about

their current partner "at this very moment". Responses were made using a 7 point likert scale anchored from 1 (*not at all*) to 7 (*extremely*). Scores were then summed to create a total score ranging from 6 to 42. The PRQC is reported to have good internal reliability (α = .88) and validity, with research indicating its components are positively correlated with other published measures created to assess similar constructs (Fletcher et al., 2000).

Relationship closeness. Relationship closeness was measured using Aron, Aron, and Smollan's (1992) Inclusion of Other in the Self Scale (IOS). The IOS is a single item, pictorial measure of relationship closeness and interpersonal connectedness. Participants are presented with 7 Venn diagrams. All diagrams display two circles (labelled 'self' and 'other'), each representing a different degree of overlap that convey different degrees of closeness. The circles are designed so that the overlap increases in a linear manner with seven increments. Participants were asked to "please circle the picture that best describes how you feel about your relationship with your current romantic partner, at this very moment". Each diagram was then labelled 1 (*lowest levels of closeness*) to 7 (*greatest levels of closeness*), and participants' responses recorded. The IOS has been shown to have good reliability (α = .95), two week test-re-test reliability (α = .85), and predictive validity (predicting whether individuals are still with their partner three months later (r = .46, $p < 0.01$; Aron et al., 1992). Furthermore, Aron et al. (1992) reported that the IOS has good convergent validity, with a significant positive correlation identified among the IOS and Berscheid, Synder, and Omoto's (1989) Relationship Closeness Inventory (r = .22, $p < 0.01$), and Sternberg's (1988) Intimacy Scale (r = .45, $p < 0.01$).

Negative emotions in a romantic relationship. Level of negative emotion experienced when thinking about one's current romantic partner was measured using

Saffrey and Ehrenberg's (2007) Relationship Specific Adjustment Scale (RES). The RES asked participants to rate the degree to which they felt various positive and negative emotions when thinking about their past romantic partner. For the current study these instructions were modified with participants asked to rate the degree to which they felt negative emotions when thinking about their current romantic partner. The negative emotions were hurt, annoyed, depressed, miserable, sad, disappointed, frustrated, guilty, and lonely. Each emotion was rated on a 7 point likert scale ranging from 1(*not at all*) to 7 (*very much*). All items were then summed and averaged to create a negative emotion subscale. In their sample of university students Saffrey and Ehrenberg (2007) reported good reliability with an cronbach alpha of .88 for the negative emotion subscale.

Apparatus

Timers. Three timers were used to keep time for each of the three thinking tasks (thinking on a negative or typical event, rumination or distracting after thinking about that event, and thinking about a positive event). Timers were labelled: "Timer 1", "Timer 2" and "Timer 3". The three timers were preset to two minutes, eight minutes and five minutes. Participants had to start each timer when indicated.

Procedure

As noted previously this study had two phases. Firstly, individuals who wished to participate were emailed the information sheet, consent form, and a set of online questionnaires to complete (see Appendix G and H). Participants were asked to complete the online questionnaires by themselves in an environment where they had few distractions.

One week after completing the first part of the study, participants were invited to the research office to complete the experimental phase of the study. For this second part of the study, participants were individually seated in a room where they completed a booklet that contained several questionnaires and instructions for the three experimental tasks. Participants were given the three pre-set timers to use.

The questionnaire booklet instructed participants to complete three questionnaires about their current (or most recent) romantic partner "at this very moment" (the RES, PRQC and IOS) and their current mood "at the present moment" (the BMIS). Participants then rated their current mood out of 100 (anchored 0 = *I feel very sad* to 100 = *I feel very happy*). The first thinking task was then completed. This task required participants to either think of a negative or typical relationship event for two minutes. Participants asked to think about a negative relationship event received the following instructions:

*Please think about your **current** romantic partner (if you are not currently in a relationship, please think about your most recent past romantic partner). Think about an event with your partner that made you feel really **sad, upset or negative**.*

*Some events you may want to consider are: an argument, a disappointing night out, a stressful time, or some bad news you might have received. **Please take time to imagine what the negative event was like and try to relive it again in your mind's eye.***

*When you have an event to think about, please **press start on TIMER ONE and begin.** The timer is set for two minutes. When it beeps turn over the page.*

In contrast, participants asked to think about a typical relationship event received the following instructions:

*Please think about your **current** romantic partner (if you are not currently in a relationship, please think about your most recent past romantic partner). Think about an event with your partner that would **typically occur during an average and normal weekday**.*

*Some events you may want to consider are: the types of things you do on a daily basis together, waking up, eating, attending classes, going to meetings. **Please take time to imagine what the typical event was like and try to relive it again in your mind's eye.***

*When you have an event to think about, please **press start on TIMER ONE and begin.** The timer is set for two minutes. When it beeps turn over the page*

After two minutes, participants were asked to complete a second thinking task. For this task participants were asked to either continue thinking about the event and ruminate, or to distract themselves from it. Those in the rumination condition received the following instructions:

*For this next part please **think about** and **note down** how you **felt** during the negative (typical) event you have just been thinking about, as **vividly** and in **as much detail** as you can. The following questions may help you with this task:*

What were you feeling?

What made you feel that way? What did your feelings mean?

What sensations were there in your body?

Why did you react the way you did?

What thoughts were going through your mind?

What were you thinking about your partner?

What were your thoughts about yourself and your feelings?

*Please describe your **thoughts and feelings** as vividly and in as much detail as you can. Use the space provided below and on the following page for this task. Use the back of the page if necessary. You will be given **8 minutes** for this task.*

*Please **press start on TIMER TWO now, and begin**. When the timer indicates eight minutes has passes, please stop writing.*

In contrast, those in the distraction condition received the following instructions:

*For this next part, please **think about** the layout of New Zealand and imagine it in your mind's eye, as **vividly** and in **as much detail** as you can.*

Think about as many of the different towns and cities as you can. Note down these names in alphabetical order, trying to think of as many towns and cities for each letter of the alphabet as you can.

*Use the space provided below and on the following page for this task. Use the back of the page if necessary. You will be given **8 minutes** for this task.*

*Please **press start on TIMER TWO now, and begin.** When the timer indicates 8 minutes has passed, please stop writing.*

On completing the task (ruminating or distracting for eight minutes) participants rated their current mood out of 100 (anchored *I feel very sad* (0) to *I feel very happy* (100)). They then completed the same four questionnaires filled out before the experimental task (the BMIS, RES, IOS and PRQC).

To conclude the experiment, all participants were asked to complete one last thinking task. This task involved thinking about a positive relationship event for five minutes to ensure they left feeling positive about their relationship. The instructions for this were as follows:

Lastly, you are now going to be asked to complete a second thinking task.

Please think about your ***current*** *romantic partner (if you are not currently in a relationship, please think about your most recent past romantic partner). Think about an event with your partner that made you feel really* ***happy, cheerful,*** *and* ***positive****.*

Some events you may want to consider are: a celebratory event, a fun night out, or a positive conversation. ***Please take time to imagine what the positive event was like, and try to relive it again in your mind's eye****.* ***Think about*** *and* ***note down*** *how you* ***felt****, as* ***vividly*** *and in* ***as much detail*** *as you can. The following questions may help you with this task:*

What were you feeling?

What made you feel that way? What did your feelings mean?

What sensations were there in your body?

Why did you react the way you did?

What thoughts were going through your mind?

What were you thinking about your partner?

What were your thoughts about yourself and your feelings?

Please describe your ***thoughts and feelings*** *as vividly and in as much detail as you can. Use the space provided below and on the following page for this task. Use the back of the page if necessary. You will be given* ***5 minutes*** *for this task.*

Please ***press start on <u>TIMER THREE</u> now, and begin.*** *When the timer indicates 5 minutes has passed, please stop writing.*

On completion of the study, all participants were given a verbal debriefing and received a handout to take away (see Appendix I). Participants were encouraged to contact the researcher if they had any questions.

Statistical Analyses

All data were entered into a Microsoft ACCESS (2007) database. A random ten percent of the questionnaire booklets were randomly selected and data entry checked. Data were transferred from the ACCESS (2007) database into SPSS (IBM, 2010) for statistical analyses. All data were examined for anomalies and normality of distribution was explored for each questionnaire. None of the variables were normally distributed. Where possible, data were transformed to fit a normal distribution. Several variables, however, were unable to be transformed and were therefore left in their original form (see Appendix J). Analyses were run with both the original and transformed variables. No differences in the findings of these analyses were reported. Results with transformed variables, where possible, are reported.

All data were analysed using two-way Analyses of Covariance (ANCOVAs). Each ANCOVA investigated the effect of the type of event an individual thought about (negative/typical) and response style (rumination/distraction) on the following dependent variables at Time 2: negative emotion, relationship satisfaction, relationship closeness, and negative feelings when thinking about one's partner. Response style and type of event were entered as fixed factors. Emotions/interpersonal feelings at Time 1 were entered as a covariate. To investigate the contribution of attachment style, the ANCOVAs for each

dependent variable were repeated with either anxious-ambivalent or avoidant attachment as a fixed factor.[5]

This sample consisted of 197 participants who were currently in a relationship and 41 who had been in a relationship but were currently single. Relationship status was entered into the analyses as a fixed factor. No main effect of relationship status was identified such that those in a current relationship did not have a different pattern of results to those who were currently single. Analyses were repeated with relationship length was an additional covariate. Again the pattern of results did not change. Overall, these results indicated that all participants, regardless of their duration of relationship, responded in a similar manner. All participants were therefore included in the analyses of negative emotion. On the other hand, relationship status was expected to affect interpersonal variables such as relationship satisfaction, closeness, and negative emotion about the relationship. Confirming this, when relationship status was added to the analyses the pattern of results changed, with those who were currently in a relationship reporting significantly greater levels of relationship dissatisfaction, closeness and negative emotion about the relationship, than those who were currently single. As a result, only those individuals who were currently in a relationship were included in the analyses of these interpersonal variables (n = 197). Length of relationship was also entered as covariate but did not change the results identified and was therefore not included in the final analyses.

[5] Participants attachment scores (anxious-ambivalent attachment and avoidant attachment) were separated based on a median split (Field, 2009) into high and low anxious-ambivalent attachment, and high and low avoidant attachment categories. For overall mood and the BMIS negative emotion scale, the nine cases that fell on the median for anxious-ambivalent attachment were excluded. No cases fell on the median for avoidant attachment. Similarly, for the three interpersonal variables, the seven cases that fell on the median for anxious-ambivalent attachment were excluded, as were the 13 that fell on the median for avoidant attachment.

Results

Sample Characteristics

Table 2.2 reports the means (and standard deviations) for males and females' scores on ratings of rumination, attachment, depressive symptoms, and interpersonal variables obtained at Phase 1. As can be seen in Table 2.2, females reported higher levels of rumination and depressive symptoms than males. No gender differences were found in levels of anxious-ambivalent attachment, avoidant attachment, relationship conflict, relationship support, or relationship depth. Cronbach alphas for this sample indicated good reliability, ranging from .64 to .92.

Table 2.2

Attachment, Rumination, Depressive Symptoms, and Relationship Conflict, Depth, and Support (Study Phase 1), by Gender

Measure	Males			Females				
	α	*M*	*(SD)*	*α*	*M*	*(SD)*	*t*	*p*
Rumination	.90	36.52	8.77	.92	41.33	8.42	-3.92	< .01
Anxious Attachment	.64	26.41	9.13	.70	27.95	9.99	-0.92	.36
Avoidant Attachment	.79	25.35	7.35	.73	23.86	7.21	1.46	.15
Depressive symptoms	.75	9.21	0.76	.68	12.58	8.30	-3.18	< .01
Conflict	.79	1.89	0.55	.77	1.90	0.58	-0.03	.98
Support	.74	3.57	0.35	.82	3.47	0.54	1.37	.17
Depth	.85	3.49	0.49	.87	3.36	0.61	1.55	.12

Note.(*df*) = 236 in all cases.

Table 2.3 reports the correlations between all Phase 1 measures. As in Study 1, rumination was significantly associated with higher levels of anxious-ambivalent attachment, avoidant attachment, and depressive symptoms. Table 2.3 also indicates that rumination was associated with a greater level of relationship conflict and lower levels of relationship depth, and perceived support. Higher levels of anxious-ambivalent attachment, and avoidant attachment were associated with higher levels of depressive symptoms and conflict, and lower levels of relationship depth and support.

Table 2.3

Correlations Among Attachment, Rumination, Depressed Symptoms, and Relationship Conflict, Depth, and Support (Study Phase 1)

	[1]	[2]	[3]	[4]	[5]	[6]	[7]
Rumination [1]	-	.46**	.26**	.40**	.24**	-.21**	-.08
Anxious attachment [2]		-	.28**	.51**	.45**	-.40**	-.24**
Avoidant attachment [3]			-	.32**	.32**	-.29**	-.35**
Depressive symptoms [4]				-	.49**	-.39**	-.28**
Conflict [5]					-	-.53**	-.41**
Support [6]							.63**
Depth [7]							-

Note. ** = $p < 0.01$.

Descriptive statistics for ratings of emotional and interpersonal variables pre (Time 1) and post (Time 2) the experimental component of the study (Phase 2) are presented in Table 2.4. As can be seen in Table 2.4 there were no significant gender differences. As a result, male and female data were analysed together in subsequent analyses.[6]

Table 2.4

Comparison of Emotional and Interpersonal Variables Before (Time 1) and After (Time 1) the Experimental Task (Study Phase 2), by Gender

Measure	Males			Females				
	α	*M*	*(SD)*	α	*M*	*(SD)*	*t*	*p*
Overall Mood rating Time 1	-	76.64	(14.73)	-	73.36	(17.80)	1.35	.18
Overall Mood rating Time 2	-	71.29	(17.59)	-	67.99	(18.53)	1.27	.21
Negative emotion Time 1	.73	2.26	(0.83)	.67	2.31	(0.92)	-0.20	.84
Negative emotion Time 2	.83	2.36	(0.98)	.72	2.49	(1.04)	-0.89	.38
Relationship Satisfaction Time 1	.82	36.08	(4.88)	.78	36.64	(4.81)	-0.74	.46
Relationship Satisfaction Time 2	.79	36.13	(5.43)	.75	36.09	(5.65)	0.04	.97
Relationship Closeness Time 1	-	5.14	(1.54)	-	4.97	(1.37)	0.75	.45
Relationship Closeness Time 2	-	5.03	(1.60)	-	4.80	(1.45)	0.99	.32
Negative feelings about the relationship Time 1	.85	1.81	(0.99)	.86	1.91	(1.02)	-0.59	.55
Negative feelings about the relationship Time 2	.76	1.80	(0.92)	.86	2.06	(1.13)	-1.58	.12

Note. df = 236 for Overall mood and Negative emotion; *df* = 195 for Negative feelings about the relationship, and Relationship satisfaction; df = 193 for Relationship closeness.

[6] Gender was also examined by entering it as a Fixed Factor into each ANCOVA reported in this results section. Results indicated no main effect for gender in any of the analyses, suggesting that males and females were responding similarly in their ratings of emotions and interpersonal feeling.

Emotional Consequences of Ruminating on a Romantic Relationship Event

It was hypothesised that ruminating on a negative relationship event would result in greater levels of negative emotion than distracting after thinking about that event. Two measures of emotion were assessed; overall mood and a measure of negative emotions.

Overall mood. An ANCOVA tested the prediction that individuals who ruminated on a negative relationship event (compared to those who distracted) would experience greater levels of sad mood, as measured by the overall mood rating scale (lower ratings indicating lower mood). Results confirmed the consequences of ruminating versus distracting on overall mood differed depending on the type of event thought about (F (1, 236) = 7.35, p = .01). This interaction is displayed in Figure 2.1. As can be seen in Figure 2.1 individuals who ruminated on a negative event reported the lowest levels of mood, while those who ruminated on a typical event reported the highest levels of mood.

The ANCOVA also revealed a main effect of event type (F (1, 236) = 57.40, p < .01). A main effect of response style was not found (F (1, 236) = 0.70, p = .40).

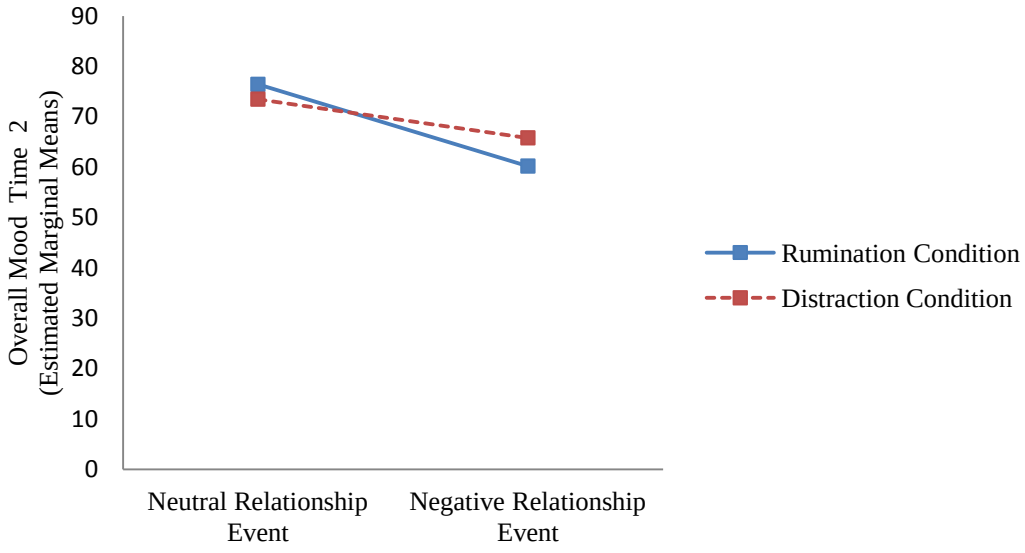


Figure 2.1. Effect of response style and type of relationship event on overall mood time 2 (controlling for overall mood time 1)

Given the significant interaction between response style and event type, simple effects were calculated to further investigate the differences among each of the four experimental conditions (ruminating on a negative event, ruminating on a typical event, distracting after thinking about a negative event, and distracting after thinking about a typical event). Table 2.5 displays the means and standard deviations for participants' mood at Time 2 across each condition. Consistent with the hypothesis, analyses indicated that participants who thought about a negative relationship event reported significantly lower levels of mood if they ruminated on this event than if they distracted after thinking about it (F (1,118) = 4.71, p =.03). No significant difference in mood was found between the rumination and distraction conditions when the event was typical (F (1,118) = 2.26, p = 14). With regard to response styles, ruminating on a negative relationship event resulted in significantly lower levels of mood than ruminating on a typical event (F (1,115) = 41.30, p < .01). Similarly, distracting after thinking about a negative event resulted in significantly lower levels of mood than distracting after thinking about a typical event (F (1,121) = 15.74, p > .01).

Table 2.5

Overall Mood Ratings at Time 2 Across Response Style and Type of Event Conditions

		Response Style		
		Rumination	Distraction	*p*
		M(SD)	*M(SD)*	
Event Type	Typical event	77.88 (18.87)	70.91 (16.59)	.14
	Negative event	62.27 (17.98)	64.98 (16.16)	.03
	p	< .01	< .01	

Contribution of attachment style, rumination and type of relationship event to overall mood. It was hypothesised that individuals with a more insecure attachment style (anxious-ambivalent attachment or avoidant attachment) would experience more negative emotion when ruminating on a negative relationship event than individuals with a more secure attachment style. ANCOVAs were conducted separately with anxious-ambivalent attachment and avoidant attachment. Contrary to the hypothesis, and as can be seen in Table 2.6 and Table 2.7, neither anxious-ambivalent nor avoidant attachment styles combined with response style and event type to significantly affect mood.

The interaction previously identified between response style and event type was significant. As can be seen in Table 2.6 and 2.7, this interaction followed the same pattern identified in the original model noted above, with individuals who ruminated on a negative event experiencing the lowest mood, while those who ruminated on a typical event experienced the highest mood (see Appendix K for graphs of these interactions).

Tables 2.6 and 2.7 also reveal that for both analyses, thinking about a negative event resulted in lower mood than thinking about a typical event. Individuals who ruminated, however, were not found to report different levels of mood to those who distracted.

Table 2.6

Contribution of Anxious-Ambivalent Attachment, Response Style and Type of Relationship Event to Overall Mood Time 2 (Controlling for Overall Mood Time 1)

Variable	*df*	Mean square	*F*	*p*
Response Style	1	88.85	0.60	.44
Event Type	1	7815.07	52.29	< .01
Anxious Attachment	1	1.32	0.01	.93
Response Style*Event Type	1	1180.17	7.90	.01
Response Style*Anxious Attachment	1	66.65	0.45	.51
Event Type*Anxious Attachment	1	105.87	0.71	.40
Response Style*Event Type*Anxious Attachment	1	244.47	1.62	.20

Table 2.7

Contribution of Avoidant Attachment, Response Style and Type of Relationship Event to Overall Mood Time 2 (Controlling for Overall Mood Time 1)

	df	Mean square	*F*	*p*
Response Style	1	103.84	0.70	.41
Event Type	1	8314.13	55.77	< .01
Avoidant Attachment	1	119.88	0.80	.37
Response Style*Event Type	1	1087.13	7.29	.01
Response Style*Avoidant Attachment	1	24.97	0.17	.68
Event Type*Avoidant Attachment	1	83.55	0.56	.46
Response Style*Event Type*Avoidant Attachment	1	24.44	0.15	.70

Negative emotion. As expected, event type was found to be a significant factor in determining the consequences of response style on participants' levels of negative emotion, as measured by the negative emotion subscale of the BMIS (higher ratings indicating greater levels of negative emotion; F (1,236) = 6.53, p = .01). This interaction between response style and event type can be seen visually in Figure 2.2. Consistent with the hypothesis, those ruminating on a negative event reported the greatest amount of negative emotion while those ruminating on a typical event reported the least. Results also indicated a main effect of event type (F (1, 236) = 42.72, p < .01). No main effect of response style, however, was identified (F (1, 236) = .00, p = .95).

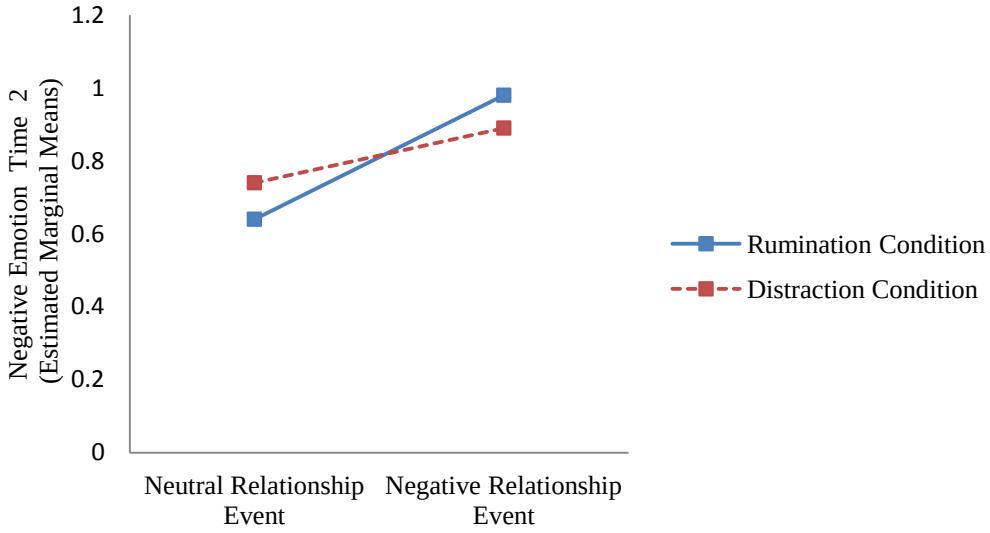


Figure 2.2. Effect of response style and type of relationship event on negative emotion time 2 (controlling for negative emotion time 1)

Given the significant interaction between the effect of response style and event type, simple effects were calculated to test the differences between the means. Table 2.8 displays means and standard deviations for negative emotion at Time 2 across each of the experimental conditions. Results indicated that ruminating on a negative event resulted in

significantly greater levels of negative emotion than ruminating on a typical event (F (1,115) = 36.85, $p < .01$). Similarly, distracting after thinking about a negative event resulted in significantly greater levels of negative emotion than distracting about a typical event (F (1,121) = 8.95, $p < .01$). Contrary to the hypothesis, ruminating on a negative event did not result in significantly greater levels of negative emotion than distracting about a negative event (F (1,118) = 2.81, $p = .10$). Rumination on a typical event resulted in marginally lower levels of negative emotion than distracting after thinking about a typical event (F (1,118) = 3.32, $p = .07$).

Table 2.8

Negative Emotion Ratings at Time 2 Across Response Style and Type of Event Conditions

		Response Style		
		Rumination M(SD)	Distraction M(SD)	*p*
Event Type	Negative event	.94 (.40)	.90 (.40)	.10
	Typical event	.63 (.38)	.76 (.43)	.07
	p	< .01	< .01	

Contribution of attachment style, rumination and type of relationship event to negative emotion. Results of the ANCOVA with anxious-ambivalent attachment as a fixed factor are displayed in Table 2.9, while results for the ANCOVA with avoidant attachment as a fixed factor are displayed in Table 2.10. Contrary to the hypothesis, Table 2.9 outlines results that show no interaction among response style, event type, and anxious-ambivalent attachment. Avoidant attachment followed this pattern, with Table 2.10 indicating no interaction among response style, event type and avoidant attachment.

As with overall mood, both analyses revealed that the interaction between response style and event type was significant. This interaction followed the same pattern identified in the original model, where individuals who ruminated on a negative event experienced the lowest mood, while those who ruminated on a typical event experienced the highest (see Appendix K for graphs of these interactions).

Following the pattern established above, in both analyses a main effect of event type was identified but not of response style was not.

Table 2.9

Contribution of Anxious-ambivalent Attachment Response Style and Type of Relationship Event to Negative Emotion Time 2 (Controlling for Negative Emotion Time 1)

Variable	*df*	Mean square	*F*	*p*
Response Style	1	0.00	0.00	.98
Event Type	1	3.73	44.63	< .01
Anxious Attachment	1	0.02	0.25	.62
Response Style*Event Type	1	0.67	7.98	.01
Response Style*Anxious Attachment	1	0.20	2.39	.12
Event Type*Anxious Attachment	1	0.01	0.07	.79
Response Style*Event Type*Anxious Attachment	1	0.02	0.20	.65

Table 2.10

Contribution of Avoidant Attachment, Response Style and Type of Relationship Event to Negative Emotion Time 2 (Controlling for Negative Emotion Time 1)

Variable	*df*	Mean square	*F*	*p*
Response Style	1	0.00	0.02	.97
Event Type	1	3.47	41.67	< .01
Avoidant Attachment	1	0.08	0.95	.33
Response Style*Event Type	1	0.56	6.74	.01
Response Style*Avoidant Attachment	1	0.01	0.16	.70
Event Type*Avoidant Attachment	1	0.18	2.12	.15
Response Style*Event Type*Avoidant Attachment	1	0.00	0.01	.94

Summary of results. As expected, significant interactions between response style and event type were found for both overall mood and negative emotion. Within this, simple effect calculations indicated that those who ruminated on a negative relationship event experienced significantly lower levels of overall mood (greater sadness), but not significantly greater levels of negative emotion, than those who did not. This said, results for negative emotion were in the predicted direction.

Contrary to the hypothesis, neither anxious-ambivalence nor avoidant attachment were found to significantly contribute to the experience of overall mood or negative emotion when ruminating (versus distracting) on a negative or typical event.

Interpersonal Consequences of Ruminating on a Romantic Relationship Event

It was predicted that those who ruminated on a negative relationship event would experience greater levels of relationship dissatisfaction than those who distracted. Three interpersonal variables were assessed: relationship satisfaction, relationship closeness, and negative feelings experienced when thinking about the relationship. The analyses for each of these dependent variables are presented below. As indicated in the Statistical Analysis section, because the question of interest concerned interpersonal consequences in romantic relationships, the 41 participants who were currently single were excluded from this analysis.

Relationship satisfaction. An ANCOVA was run to investigate the contribution of response style and event type to relationship satisfaction, as measured by the PRQC (with higher scores indicating greater levels of relationship satisfaction). Contrary to the hypothesis, the interaction between response style and event type was not significant (F (1,195) = 2.17, p = .14).

A main effect of event type was identified (F (1, 195) = 7.76, p = .01). As expected, people who thought about a negative relationship event (M = 35.88 (SD = 4.96)) reported lower levels of relationship satisfaction than those who thought about a typical relationship event (M = 36.34 (SD = 6.14)). In contrast, individuals who ruminated did not report different levels of relationship satisfaction than those who distracted (F (1,195) = 2.19, p = .14).

Contribution of attachment style, rumination and type of relationship event to relationship satisfaction. It was hypothesised that individuals with an insecure attachment style (anxious-ambivalent attachment or avoidant attachment) would experience greater levels of relationship dissatisfaction when ruminating on a negative relationship event than individuals with a secure attachment style. As can be seen in Table 2.11, when anxious-ambivalent attachment was added to the ANCOVA as a fixed factor (along with response style and event type) the interaction among response style, event type, and anxious-ambivalent attachment was not significant. Table 2.12 indicates that when avoidant attachment was added to the ANCOVA as a fixed factor, the interaction among response style, event type, and avoidant attachment was also non-significant.

No interaction between response style and event type was identified for either analysis. A main effect of event type was identified in the analysis that included anxious-ambivalent attachment as a fixed factor, with relationship satisfaction lower for those thinking about a negative relationship event (M = 36.01 (SD = 4.71), and higher for those thinking about a typical relationship event (M = 36.29 (SD = 6.19). A main effect of event type was identified in the analysis that included avoidant attachment as a fixed factor, with relationship satisfaction lower for those thinking about a negative relationship event M = 35.87 (SD = 5.02), and higher for those thinking about a typical relationship event (M = 36.31 (SD = 6.26). As can be seen in Tables 2.11 and 2.12, a main effect of response styles was not identified for either analysis.

Table 2.11

Contribution of Anxious-ambivalent Attachment, Response Style and Type of Relationship Event to Relationship Satisfaction Time 2 (Controlling for Relationship Satisfaction Time 1)

Variable	*df*	Mean square	*F*	*p*
Response Style	1	21.22	3.32	.07
Event Type	1	35.09	5.49	.02
Anxious Attachment	1	.01	.00	.98
Response Style* Event Type	1	7.03	1.10	.30
Response Style*Anxious Attachment	1	8.76	1.37	.24
Event Type*Anxious Attachment	1	3.55	.55	.46
Response Style*Event Type* Anxious Attachment	1	.05	.01	.93

Table 2.12

Contribution of Avoidant Attachment, Response Style and Type of Relationship Event to Relationship Satisfaction Time 2 (Controlling for Relationship Satisfaction Time 1)

Variable	*df*	Mean square	*F*	*p*
Response Style	1	9.90	1.45	.23
Event Type	1	50.02	7.61	.01
Avoidant Attachment	1	14.10	2.06	.15
Response Style* Event Type	1	16.10	2.36	.13
Response Style* Avoidant Attachment	1	1.32	.19	.66
Event Type*Avoidant Attachment	1	2.27	.33	.57
Response Style* Event Type*Avoidant Attachment	1	2.96	.43	.51

Relationship closeness. It was hypothesised that response style and event type would interact to affect participants' levels of relationship closeness as measured by the IOS. Higher scores on the IOS indicated greater levels of closeness. Results indicate that the consequences of ruminating versus distracting did not differ depending on the type of event thought about (F (1, 193) = .88, p = .35).

A main effect of event type (F (1,193) = 4.91, p =.03) was identified, with relationship closeness lower among those who thought of a negative relationship event (M = 4.71 (SD = 1.38)) as opposed to a typical relationship event (M = 5.02 (SD = 1.60)). Level of relationship closeness was not found to differ across rumination and distraction conditions (F (1, 193) = .13, p = .72).

Contribution of attachment style, rumination and type of relationship event to relationship closeness. As can be seen in Table 2.13, contrary to expectations, anxious-ambivalent individuals were not found to experience significantly lower levels of relationship closeness when ruminating on a negative/typical relationship event, as compared to distracting after thinking about a negative/typical relationship event. Results also revealed no interaction between response style and event type when anxious-ambivalent attachment was added to the model. A main effect of event type was found, indicating that thinking about a negative event resulted in lower relationship closeness (M = 4.76 (SD = 1.35) than thinking about a typical event (M = 5.02 (SD =1.61)). No main effect of response style was identified.

Similarly, results of the ANCOVA with avoidant attachment as fixed factor (see Table 2.14) revealed the interaction among response style, event type and avoidant attachment

was not significant, nor was the interaction between response style and event type. A main effect of event type was indicated, suggesting that thinking about a negative event (*M* = 4.77 (*SD* = 1.39)) resulted in lower levels of relationship closeness than thinking about a typical event (*M* = 5.02 (*SD* = 1.61)). No main effect of response style was identified.

Table 2.13

Contribution of Anxious-ambivalent Attachment, Response Style and Type of Relationship Event to Relationship Closeness Time 2 (Controlling for Relationship Closeness Time 1)

Variable	*df*	Mean square	*F*	*p*
Response Style	1	.12	.21	.64
Event Type	1	2.26	4.11	.04
Anxious Attachment	1	1.12	2.02	.16
Response Style*Event Type	1	.42	.76	.38
Response Style*Anxious Attachment	1	.00	.00	.96
Event Type*Anxious Attachment	1	.36	.66	.42
Response Style*Event Type*Anxious Attachment	1	.09	.17	.68

Table 2.14

Contribution of Avoidant Attachment, Response Style and Type to Relationship Event on Relationship Closeness Time 2 (Controlling for Relationship Closeness Time 1)

Variable	*df*	Mean square	*F*	*p*
Response Style	1	.06	.10	.75
Event Type	1	2.05	3.78	.05
Avoidant Attachment	1	.96	1.77	.19
Response Style*Event Type	1	.80	1.48	.23
Response Style*Avoidant Attachment	1	.32	.59	.44
Event Type*Avoidant Attachment	1	.03	.06	.81
Response Style*Event Type*Avoidant Attachment	1	.02	.03	.86

Negative emotion in the relationship. Contrary to the hypothesis, the interaction between response style and event type was not significant (F (1,194) = 2.51, p = .12).

A main effect for event type (F (1, 194) = 34.18, p < .01) was identified: Thinking about a negative relationship event resulted in greater levels of negative emotion in regards to one's relationship than thinking about a typical event (M = 2.19 (SD = 1.04) versus M = 1.78 (SD = 1.08) respectively). No main effect of response style was identified (F (1, 194) = .44, p = .51).

Contribution of attachment style, rumination and type of relationship event to the negative emotions about romantic relationships. Results of the ANCOVA where anxious-ambivalent attachment was added as a fixed factor are presented in Table 2.15.

Results of the ANCOVA where avoidant attachment was entered as a fixed factor are presented in Table 2.16. Contrary to the hypothesis, Table 2.15 indicates that the interaction among response style, event type and anxious-ambivalent attachment was not significant. In regards to avoidant attachment, Table 2.16 indicates that the interaction among response style, event type and avoidant attachment was also not significant. In addition, as can be seen in Tables 2.15 and 2.16, no significant interaction between response style and event type was identified for either analysis.

Results of the ANCOVA with anxious-ambivalent attachment as a fixed factor (Table 1.15) indicated that thinking about a negative event resulted in greater levels of negative feelings about their relationship (M = 2.20 (SD = 1.06)) than thinking about a typical event (M = 1.80 (SD = 1.09)). Similarly, results of the ANCOVA with avoidant attachment as fixed factor that thinking about a negative event (M = 2.21 (SD = 1.07)) resulted in more negative feelings about the relationship then thinking about a typical event (M = 1.75(SD = 1.05)). No main effect of response style was identified for either analysis.

Table 2.15

Contribution of Anxious-ambivalent Attachment, Response Style and Type of Relationship Event to Negative Emotions about the Relationship Time 2 (Controlling for Negative Feelings about the Relationship Time 1)

Variable	*df*	Mean square	*F*	*p*
Response Style	1	.12	.26	.61
Event Type	1	14.93	31.95	< .01
Anxious Attachment	1	.06	.12	.73
Response Style*Event Type	1	1.29	2.75	.10
Response Style*Anxious Attachment	1	.73	1.56	.21
Event Type*Anxious Attachment	1	.01	.02	.90
Response Style*Event Type*Anxious Attachment	1	.00	.00	.95

Table 2.16

Contribution of Avoidant Attachment, Response Style and Type of Relationship Event to Negative Emotions about the Relationship Time 2 (Controlling for Negative Feelings about the Relationship Time 1)

Variable	*df*	Mean square	*F*	*p*
Response Style	1	.29	.71	.40
Event Type	1	14.34	31.81	< .01
Avoidant Attachment	1	.38	.95	.33
Response Style*Event Type	1	1.12	3.00	.09
Response Style*Avoidant Attachment	1	.04	.04	.84
Event Type*Avoidant Attachment	1	.04	.00	.99
Response Style*Event Type*Avoidant Attachment	1	.40	.45	.50

Summary of results. Ruminating (versus distracting) on a negative relationship event was not found to result in greater negative interpersonal consequences for the individual. Thinking about a negative versus typical relationship event did result in greater relationship dissatisfaction, lower levels of relationship closeness, and greater negative feelings experienced in one's relationship. In contrast, ruminating on a relationship event versus distracting did not have any significant effect on these variables.

Neither anxious-ambivalent nor avoidant attachment increased the experience of relationship dissatisfaction, relationship distance, nor negative feelings about the relationship for those ruminating (versus distracting) on a negative or typical relationship event.

Summary and Discussion

The aim of this study was to increase our understanding of rumination by exploring the specific consequences of this strategy for regulating emotions in the context of a romantic relationship. In addition to exploring the contribution of context, it was also aimed to examine the contribution of attachment to rumination. In doing this the broader consequences of rumination were investigated. This was done by exploring the interpersonal consequences of rumination as well as its impact on emotion more generally.

Broader Emotional and Interpersonal Consequences of Rumination

Emotional consequences. Ruminating (vs distracting) on a negative relationship event was found to result in lower overall mood (greater sadness), but not greater levels of negative emotion. The significant finding identified here for overall mood is in line with

Nolen-Hoeksema's (1991) response styles theory which proposes rumination is an ineffective strategy for regulating emotion as it decreases mood while distraction relieves it. It is also in line with previous experimental studies which have found ruminating on a negative event increases sad mood (Lo et al., 2010; McLaughlin et al., 2007; Nolen-Hoeksema & Morrow, 1993).

Given the findings of Study 1 supported the proposal that the consequences of rumination extend beyond depressed mood to also affect the emotions of shame, guilt, and anger, it is puzzling as to why ruminating on a relationship event did not result in greater levels of negative emotion as compared to distracting. One possibility is that this finding is reflective of differences in the focus of the variables measured, with overall mood specifically assessing one feeling state (the scale was anchored *I feel very sad* to *I feel very happy*), while negative emotion incorporated a variety of negative feeling states (e.g. anger, anxiety, sadness). This broader focus of negative emotion may, in turn, have weakened the relationship identified between rumination and negative emotion as some emotions may have been endorsed while others were not. Alternatively, it is also possible that findings are due to differences in the content of individuals' ruminative thought (which was not measured), with different negative relationship events evoking different specific feelings. In this case it may be that the negative events participants thought about in this study evoked greater feelings of sadness specifically, which in turn, resulted in a stronger activation of the sadness node in their associative network. This possibility, in turn, reinforces the specific role of the content of ruminative thoughts in determining the consequences of rumination.

Interpersonal consequences: The literature reviewed in Chapter 1 indicated ruminators experience increased difficulty in their interpersonal relationships due to several negative interpersonal characteristics that have been found to be associated with rumination (Berry et al., 2005; Lam et al., 2003; Lavallee & Parker, 2009; Paleari et al., 2005). It was proposed that these associated characteristics would result in greater negative interactions which, in turn, would result in greater negative interpersonal feelings. As noted above in regards to emotion, it was also proposed that rumination would act as a cognitive mechanism that increased any emotion attached to the thought on which an individual was ruminating. In this case, an individual would experience greater relationship dissatisfaction when ruminating on this feeling. Findings for the current study, however, did not support this hypothesis, with ruminating on a negative relationship event (as compared to distracting after thinking about a relationship event) not found to result in significantly greater levels of relationship dissatisfaction, relationship distance, or negative feelings about the relationship.

This finding, is in contrast to the emerging literature which has found rumination to be significantly correlated with decreased relationship satisfaction (Pearson et al., 2010) and negative feelings about the relationship (Saffrey & Ehrenberg, 2007). One possible explanation for this difference may be that given interpersonal feelings are based on the context of a interpersonal relationship and emerge from different relationship experiences in that context, the effect rumination has on interpersonal feelings may be cumulative, as opposed to immediate. That is, the interpersonal cost of rumination may only be evident after a sustained period of ruminating on different negative relationship events. Supporting this possibility, it is noted that the two studies noted above (Pearson et al., 2010; & Saffrey and Ehrenberg, 2007) both examined the consequences of an individual's

general tendency to ruminate. Furthermore, correlation analyses from Phase 1 indicated rumination does have interpersonal consequences, with higher levels of self-reported rumination significantly associated with lower levels of relationship support and relationship depth, and higher levels of relationship conflict.

Contribution of Attachment Style to Rumination, Negative Emotion, and Interpersonal Consequences

A second aim of the current study was to continue to investigate the contribution of attachment style to rumination. Given the central role attachment plays in the development of an interpersonal relationship (Simpson et al., 1992), its influence on emotion regulation (Siegel., 2001), and the core negative beliefs about the self and others contained in the IWM of insecurely attached individuals (Bowlby. 1969), it was proposed that an insecure attachment style would contribute to the negative consequences of rumination on emotion and interpersonal feelings. This is because rumination will likely heighten and maintain an insecurely attached individual's awareness of their core vulnerabilities and provide a continued stream of evidence that validates these vulnerabilities, thereby fuelling further self-doubt about one's relationship (Saffrey & Ehrenberg., 2007; Simpson et al., 1992). Contrary to the hypothesis, however, results indicated that neither anxious-ambivalent nor avoidant attachment combined with rumination to produce greater negative emotion nor negative interpersonal consequences.

These results are in contrast to the findings of Margolese et al. (2005) who found rumination in the context of a romantic relationship mediated the relationship between attachment and depression in their sample of adolescents. They are also in contrast to the findings of Saffrey and Ehrenberg (2007) who found rumination on a relationship break-

up mediated the relationship between attachment anxiety and adjustment. Given these differences it may be that a specific component of attachment addressed by Margolese at al. (2005) and Saffrey and Ehrenberg (2007) but not addressed in the current study was responsible for the mediating effect of rumination on attachment that was highlighted. Supporting this idea, Pearson et al. (2010) found that neither anxious-ambivalent nor avoidant attachment were associated with rumination (when controlling for depression), but that rejection sensitivity, which they defined as a component of an insecure attachment, was. In the current study it was not intended to assess attachment differently to Margolese et al. (2005) and Saffrey and Ehrenberg (2007). However, given that each study used a different measure of attachment it may be that differences between these scales meant different components of anxious-ambivalent attachment and avoidant attachment were addressed.[7] Future research could assess this possibility by specifically exploring the contribution of different components of an insecure attachment style.

Implications

Several implications for rumination theory are indicated. Firstly, correlational analysis in the current study continue to build the case that the consequences of rumination are wide reaching, with rumination associated with greater levels of relationship conflict and lower levels of relationship depth and support. Second, differences in the association between rumination, emotion and interpersonal findings across correlation and experimental findings appear to suggest that the interpersonal cost of rumination may only emerge over time. Third, in regards to the aim of exploring contributors to rumination, results highlight the role of the content of ruminative thought and support the proposal that rumination is a

[7] The current study used Simpson et al.'s (1996) Adult Attachment Questionnaire (AAQ), Margolese et al. (2005) used Bartholomew and Horowitz's (1991) Relationship Questionnaire (RQ) , and Saffrey and Ehrenberg (2007) used Brennan, Clark, and Shaver's (Brennan, Clark, & Shaver, 1998) Experiences in Close Relationships Questionnaire (ECR).

cognitive mechanism the increases the feelings associated with the thoughts ruminated on. Ruminating on a negative event, for example, was found to result in significantly lower mood and greater negative emotion than ruminating on a typical event. This finding is in line with literature reviewed in Chapter 1 which noted that in comparison to depressed individuals, non-depressed individuals do not experience a drop in mood after being asked to ruminate generally (think about why you feel the way you do). They do, however, experience a drop in mood when asked to ruminate after thinking about a specific negative event (Lo et al., 2010; McLaughlin et al., 2007; Nolen-Hoeksema & Morrow, 1993). It is suggested that the reason for this difference is that when asked to ruminate generally, non-depressed individuals have little to ruminate on, thereby decreasing the possible consequences of rumination (McLaughlin et al., 2007). This, in turn, highlights why it is valuable to investigate rumination in the context of a specific situation as different contents of ruminative thought likely have differences consequences.

In regards to practical implications, results indicated that while ruminating on a negative event decreased current mood (sadness), ruminating on a typical event improved mood. Given this, it is possible that ruminators may benefit from changing the content of their ruminative thoughts from negative events to more typical events. This said, making this shift may be difficult, particularly if an individual holds positive beliefs about rumination as a strategy for managing their emotion (Alfaraj, Spada, Nika, Puffett, & Meer, 2009; Moulds et al., 2010; Roelofs et al., 2007). In this case such individuals may benefit from learning effective problem solving strategies to replace their strategy of rumination. In addition, they may also benefit from having their positive beliefs about rumination challenged (as occurs in Meta Cognitive Therapy; Moulds et al., 2010).

Limitations

The design of the current study has some limitations that need to be acknowledged. Firstly, participants were asked to think about a *past* relationship event, not a *current* relationship event. This may have meant participants discussed a resolved event that would likely have generated less intense emotion regarding their relationship than if they had discussed an unresolved event. Supporting this proposal, El-Sheikh, Buckhalt, and Reiter (2000) found males and females' perceived unresolved discussions as involving more anger than resolved discussions. Secondly, while it was expected that ruminating on a negative relationship event would lower mood, several participants commented afterwards that they felt better after the rumination task as they were able to get their feelings "off their chest". These comments are consistent with the work of Pennebaker (1997) who found writing expressively about feelings reduced negative feelings. The reason participants were asked to write out their responses here was to ensure they had followed the instructions and engaged in thinking about a particular event. Third, several participants in the distraction task noted that they had found the task frustrating as they could not think of many towns in New Zealand. This task was not intended to be frustrating. Importantly, even though these limitations may have weakened the intended differences between the rumination and distraction conditions, the pattern of results identified highlighted the strength of the findings with a significant interaction between response style and event type identified when predicting current mood.

As noted in Chapter 1, a limitation of the rumination/distraction design is that it raises a potential question about whether the consequences identified are due to the repetitive nature of rumination or due to having thought about a negative event. The current study

addressed this limitation by having all participants think about an event (negative/typical) before then engaging in either a ruminative or distracting task.

Lastly, this study was based on the relationships of a university student population, therefore findings may not generalise. Future research would benefit from considering relationship specific rumination in the context of other populations.

Future Research

Given the limitations noted above, future research would benefit from refining the experimental methodology used here to examine the relationship between rumination and interpersonal factors more thoroughly. For example, future research could: 1) focus on exploring current (and not past) relationship events, 2) assess specific (as opposed to general) emotions, and 3) use a longitudinal design to assess the impact of rumination on emotional and interpersonal variables over time.

Secondly, given therapy is typically centred on effectively thinking about and processing negative events (Thase, 2009), future research would benefit from comparing rumination in this context with an emotion regulation strategy which unlike the distraction condition here, involves thinking about a negative event but in an adaptive way. As an example of this, recent research has started comparing rumination to constructs such as reappraisal (Grisham et al., 2011) as well as to distraction.

Summary

The current study has highlighted the specific consequences of rumination that occurs in the context of a romantic relationship. Correlational analyses confirm the broader

implications of this emotion regulation strategy, with rumination associated with negative interpersonal feelings (lower relationship depth and perceived support, and greater relationship conflict) as well as depressive symptoms. Experimental results contribute to this understanding by suggesting that while the negative consequences of rumination on overall mood (sadness) are immediate, the negative consequences of rumination on interpersonal feelings may only be evident over time. Within this, the importance of thought content was highlighted, with ruminating on a negative relationship event decreasing mood, while ruminating on a typical relationship event improved mood. No significant effects of anxious-ambivalent and avoidant attachment as contributors to the emotional and interpersonal consequences of ruminating on a negative/typical event were identified.

Chapter 4

Does my Rumination affect my Partner?

The Emotional and Interpersonal Consequences of Rumination between Couples

---

The primary objective of this thesis was to investigate the broader consequences of rumination. In Studies 1 and 2 this was addressed by investigating the emotional and interpersonal consequences of rumination for the individual who was ruminating. Given the literature has suggested the strategies an individual chooses to regulate their emotions not only have consequences for the individual, but also for others (Gross, 2007), the next step in furthering this primary objective was to explore the consequences of rumination beyond the individual. This was felt to be important to increasing our understanding of the full impact of ruminative thought. In this chapter, possible mechanisms by which rumination in one partner may have consequences for the other partner will be reviewed. Studies 3 and 4 will then be reported and findings discussed.

Transmission of the Consequences of Rumination

In this chapter it is proposed that one partner's level of rumination will affect the other partner's level of negative emotion and relationship satisfaction. A review of the literature indicates two mechanisms by which the consequences of rumination may be transmitted from one partner to another: 1) Emotion contagion theory (Hatfield, Cacioppo, & Rapson, 1994), and 2) the interpersonal characteristics of ruminators themselves.

Emotion contagion. Emotion contagion is defined as an unconscious tendency to mimic the emotional expressions of others (Hatfield et al., 1994). As different body movements and facial expressions are made, the areas of the brain associated with

creating these different movements and expressions are thought to be activated. In turn, the emotions associated with these body movements and expressions are also thought to be activated. Emotion contagion is well documented in the literature. For example, in their sample of 1040 elderly couples Bookwala and Schulz (1996) found the emotion experienced by one partner was associated with the emotion experienced by the other. In regards to rumination, Studies 1 and 2 have indicated that ruminators experience greater levels of negative emotion. It would therefore follow that as this emotion is expressed the other partner will register this display and, in turn, likely experience similar levels of negative emotion.

Interpersonal characteristic of ruminators. In the previous chapter it was noted that the interpersonal characteristics of ruminators might increase their risk for experiencing greater negative interpersonal feelings. It is proposed here that these same characteristics may contribute to an increased likelihood that their partners will experience greater levels of negative emotion and relationship dissatisfaction. The literature reviewed in Chapter 1 indicated rumination was associated with poor interpersonal problem solving (Donaldson & Lam, 2004; Lyubomirsky et al., 1998; Lyubomirsky & Nolen-Hoeksema, 1995), low levels of forgiveness (Burnette et al., 2009; Burnette et al., 2007; Paleari et al., 2005; Tse & Cheng, 2006), low levels of perceived social support (Nolen-Hoeksema & Davis, 1999), high levels of reassurance seeking (Weinstock & Whisman, 2007), high levels of pessimism (Lyubomirsky & Nolen-Hoeksema, 1995), and a negative attribution style (Lyubomirsky & Nolen-Hoeksema, 1995). It is likely that these various factors lead to increased difficulty with social interactions, with these behaviours eliciting negative responses from others. This, in turn, may lead to a greater number of negative interactions which increases negative emotion

for both partners. Supporting this, Lam et al. (2003) commented that ruminators could find themselves in a cycle of self absorption and hopelessness that resulted in them neglecting and contributing little to their romantic relationships. Furthermore, Nolen-Hoeksema and Davis (1999) suggested it may be difficult for the partners of ruminators to remain supportive when their spouses continue to repeatedly dwell on their problems. Compounding this, Nolen-Hoeksema and Davis (1999) found that while ruminators were in need of greater levels of social support, they perceived the support they received as being less than it actually was. This, in turn may lead to increased frustration with, and criticism of, the partner who is ruminating (Nolen-Hoeksema & Davis; 1999). In regards to the current study, it is suggested that as this pattern continues, the partners of ruminators may experience higher levels of negative emotion and lower levels of relationship satisfaction.

Study 3 and 4

The literature reviewed above suggests that it is possible for the emotional states and interpersonal characteristics of one individual to affect the emotional experience of another. Given rumination is associated with experiencing greater levels of negative emotion, and poor interpersonal characteristics, it would therefore follow that the partners of high ruminators would experience negative consequences. This for example, may come through feeling more negative because one had mimicked their partner's emotional states, or alternatively, feeling more negative due to the influence rumination has on their partner's interpersonal style of relating. Despite the presence of these possible mechanisms for the transmission of rumination no research to date has investigated the experience of one partner's rumination on another. Studies 3 and 4 aim to address this gap in the literature by asking both members of a romantic couple to complete several

questionnaires assessing rumination, emotion, and variables related to relationship satisfaction.

Study 3 (Student Sample)

Method

Participants

Participants in this study consisted of forty students from the University of Canterbury and their partners who had participated as part of Study 2. All couples were in a heterosexual relationship of two months or longer. Table 3.1 summarises the demographic characteristics of this sample. As can be seen in Table 3.1, the average age of females was 24 years and the average age of males was 25years. The average length of couples' relationships was 2 years and 4 months. The sample was primarily New Zealand European. Approval for this study was given by the University of Canterbury Ethics Committee (HEC ethics application number 2009/43).

Table 3.1

Sample Characteristics, Study 3(Student Sample)

Variable	Males Mean (*SD*) or *N* (%)	Females Mean (*SD*) or *N* (%)
Sample Number	40 (50%)	40 (50%)
Mean age (years)	24.73 (7.52)	23.75 (6.72)
Age range (years)	17-50	17-46
Ethnicity (Percentage of sample is indicated in parentheses)		
New Zealand European	25 (62.5)	27 (67.5)
Maori	1 (2.5)	0 (0.0)
New Zealand European and Maori	0 (0.0)	1 (2.5)
Pacific Islander	0 (0.0)	0 (0.0)
New Zealand European and Pacific Islander	1 (2.5)	0 (0.0)
European	9 (22.5)	4 (10.0)
Chinese	1 (2.5)	0 (0.0)
South East Asian	1 (2.5)	2 (5.0)
Indian	0 (0.0)	1 (2.5)
Other	2 (5.0)	5 (12.5)
Present Relationship status (Percentage of sample is indicated in parentheses)		
In a relationship (not living with partner)	20 (50)	20 (50)
In a relationship (living with partner)	20 (50)	20 (50)

Measures

Data for the current study came from the online questionnaire participants completed as part of Study 2. Specifically, the Rumination and Reflection Scale (RRQ; Trapnell & Campbell, 1999) was used to measure rumination. The Centre for Epidemiological Studies - Depression Questionnaire (CES-D; Radloff, 1977) and Brief Mood Introspection Scale (BMIS; Mayer & Gaschke, 1988) were used to measure depressive symptoms. The Perceived Relationship Quality Components questionnaire (PRQC; Fletcher et al., 2000), Relationship Specific Adjustment Scale (RES; Saffrey & Ehrenberg, 2007), and Quality of Relationships Inventory (QRI; Pierce et al., 1991) were again used to measure relationship satisfaction. Higher scores on all measures reflected greater levels of each variable.

Statistical Analyses

Data were entered into a Microsoft ACCESS database (2007), and then transferred into SPSS (IBM, 2010) for statistical analysis. All data were examined for anomalies and normality of distribution was explored for males and females for each variable. As the sample was less than 100 the Sharipo-Wilk statistic was used to assess normality. The only variables to fit a normal distribution were rumination (RRQ) and relationship conflict (QRI). Data for the remaining variables were transformed to normal. Depressive symptoms (CESD) was transformed using a square root transformation. Negative emotion (BMIS) and negative emotion when thinking about the relationship (RES) were transformed using a log transformation. Relationship support (QRI) and relationship depth (QRI) were transformed using an inverse transformation, and relationship satisfaction (PRQC) using a square transformation. See appendix L for normality tables.

Couple data is often correlated due to both partners sharing a common environment, and shared experiences and history (Kenny, Kashy, & Cook, 2006). One statistical technique that accounts for this dependence in couples data is the Actor Partner Independence Model (APIM; Kenny & Cook, 1999; Kenny et al., 2006). Notably, the APIM allows for the investigation of effects both within and between partners. The APIM is displayed visually in Figure 3.1. As can be seen in Figure 3.1 the model has four main variables; X^1 and X^2 are the predictor variables (for example, rumination) and Y^1 and Y^2 are the outcome variables (for example, depressive symptoms). X^1 and Y^1 represent the scores of one partner, and X^2 and Y^2 the scores of the other partner. Error terms that account for error in the measurement of the outcome variables are represented in Figure 3.1 by 'e'. Single headed arrows in Figure 3.1 indicate a direct predicted path, for example, Y^1 is predicted by X^1. Double headed arrows represent dependence in the data by indicating a correlated variable. In the case of the APIM X^1 and Y^1 are correlated, and the error terms of X^2 and Y^2 are correlated.

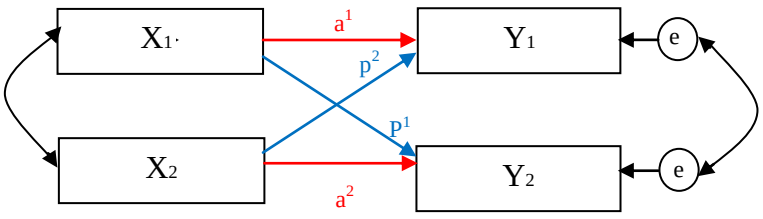


*Figure 3.1.*Diagram of the actor partner interdependence model (APIM)

The main feature of the APIM is the assessment of actor effects and partner effects. Actor effects are defined as the effect of an individual's independent variable (for example, rumination) on their outcome variable (for example, depressive symptoms). Partner effects, on the other hand, are defined as the effect of an individual's predictor variable on

their partner's outcome variable (for example, the effect of one partner's rumination on the other partner's depressive symptoms). In Figure 3.1, the two actor effects are identified by the paths labelled a^1 and a^2. The partner effects are identified by the paths labelled p^1 and p^2.

As recommended by Kenny and Cook (1999) all data in the current study were standardised using the sample grand mean and standard deviation (as opposed to the mean and standard deviations for male and female data individually). APIM models were assessed using AMOS software (Analysis of Movement Structures, Arbuckle & Wothke, 1999). As the APIM is a saturated model traditional model fit statistics were not reported (Cook & Kenny, 2005).

Results

Sample Characteristics

Table 3.2 reports reliability coefficients and descriptive statistics for males and females' responses to each of the measured emotional and interpersonal variables. Cronbach alphas indicated good internal reliability in the sample. To test the difference between male and female responses *t* tests were conducted. Two differences emerged. As can be seen in Table 3.2, females reported significantly higher levels of rumination and depressive symptoms than males.

Table 3.2

Rumination, Depressive Symptoms, and Interpersonal Feelings, by Gender (Study 3, Student Sample)

	Males			Females				
Measure	α	*M*	*(SD)*	α	*M*	*(SD)*	*t*	*p*
Rumination	.91	35.35	(8.83)	.89	39.70	(8.69)	-2.25	.03
Depressive symptoms	.80	7.95	(5.65)	.87	11.05	(7.83)	-2.26	.03
Negative emotion	.62	16.21	(4.83)	.78	18.37	(8.19)	-1.11	.27
Relationship satisfaction	.83	36.63	(4.36)	.79	38.24	(2.89)	-1.81	.07
Negative emotions in relationship	.70	14.95	(7.41)	.76	14.87	(6.01)	0.01	.99
Conflict	.85	1.92	(0.49)	.84	1.78	(0.46)	1.35	.18
Support	.74	3.55	(0.42)	.65	3.64	(0.35)	-.86	.39
Depth	.85	3.53	(0.54)	.74	3.67	(0.35)	-1.07	.29

Note.(*df*) = 78 in all cases.

Correlations were preformed to investigate the relationship amongst rumination, depressive symptoms, negative emotion, relationship satisfaction, negative emotions in the relationship, conflict, support and depth. These are described in Table 3.3. Table 3.3 shows rumination was significantly associated with depressive symptoms but not significantly greater negative emotion for females. In contrast, rumination was not significantly associated with depressive symptoms but it was significantly associated with negative emotion for males. In regards to the interpersonal variables measured, rumination was associated with lower levels of relationship satisfaction and higher levels of negative emotions in the relationship for females. For males, higher rumination was significantly associated with lower levels of relationship conflict in females.

Table 3.3

Correlations Among Rumination, Depressive Symptoms, Negative Emotion and Interpersonal Feelings (Study 3, Student Sample)

	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]
Female Rumination [1]	-.36**	.43**	.08	.25	.09	-.39*	-.13	.33*	.20	.20	.29	-.09	-.15	.15	-.07
Male Rumination [2]		-.09	.13	.34*	.35*	.30	-.06	.04	.26	-.36*	.06	.27	.00	.15	.06
Female Depressive symptoms [3]			.28	.63**	.39*	-.21	.41*	.54**	.43**	.25	.43**	-.24	-.29	-.01	-.24
Male Depressive symptoms [4]				.25	.32*	-.42**	-.30	.48**	.43**	.20	.42**	-.10	-.25	-.26	-.29
Female Negative emotion [5]					.35*	-.16	-.16	.65**	.35*	.06	.03	.12	.33*	.00	.35
Male Negative emotion [6]						-.05	-.16	.15	-.60**	.08	.00	.16	.14	.02	.10
Female Relationship satisfaction [7]							.41*	-.59**	-.43**	-.53**	-.29	-.52*	-.22	-.48**	-.25
Male Relationship satisfaction [8]								-.39*	-.60**	-.20	-.22	-.35*	-.57*	-.24	-.65*
Female Negative emotions in relationship [9]									.45**	.06	.31	.14	.54*	.14	.37*
Male Negative emotions in relationship [10]										.31	.15	.39*	.38*	.36*	.25
Female Conflict [11]											.39*	-.50**	-.09	-.43**	-.10
Male Conflict [12]												-.06	-.61*	.03	-.51**
Female Support [13]												¤	.06	.54**	.11
Male Support [14]														.07	.62**
Female Depth [15]															.30
Male Depth [16]															-

Note. ** = $p < 0.01$, * = $p < 0.05$.

Results of the omnibus test of distinguishability are presented in Table 3.4. When using the APIM it is important to differentiate whether a sample consists of distinguishable dyads or indistinguishable dyads, as this determines how the APIM is run. A dyad is considered distinguishable if there is a meaningful factor on which its two members can be separated (for example, gender). As the participants in this study were heterosexual couples, it follows that the data are distinguishable. Kenny et al. (2006), however, noted that while data may be theoretically distinguishable, they may not be empirically distinguishable. The omnibus test of distinguishably tests distinguishability by constraining actor effects, partner effects, and covariances to be equal. If the resulting chi square is significant it can be concluded couples are empirically distinguishable. As can be seen in Table 3.4, results confirmed the distinguishability of the current data across all study variables except relationship support, which was marginal (p = .08).

Table 3.4

Results for the Omnibus Test of Distinguishability (Study 3, Student Sample)

Measure	Chi Square	*P*
Depressive Symptoms	10.57	.01
Negative Emotion	8.26	.04
Relationship Satisfaction	14.99	< .01
Negative Feelings in the Relationship	11.28	.01
Relationship Conflict	22.93	< .01
Relationship Support	6.83	.08
Relationship Depth	10.85	.01

Note. (*df*) = 6 in all cases.

The Emotional Consequences of Rumination at an Individual and Partner Level

At an individual level, it was hypothesised that higher levels of rumination would be associated with higher levels of depressive symptoms and negative emotion for both males and females (significant actor effects). At a couple level, it was hypothesised that higher levels of rumination in one partner would result in higher levels of depressive symptoms and negative emotion in the other partner for both males and females (significant partner effects). Depressive symptoms were assessed using the CESD, while negative emotion was assessed using the BMIS. The analyses for each of these dependent variables are presented below.

Depressive symptoms. Figure 3.2 displays the APIM used to investigate the relationship amongst males and females' levels of rumination and depressive symptoms. As expected, a significant actor effect for females was indicated in Figure 3.2, with higher levels of rumination significantly associated with higher levels of depressive symptoms ($p < .01$). No significant actor effect was identified for males. No significant partner effects were identified for males or females.

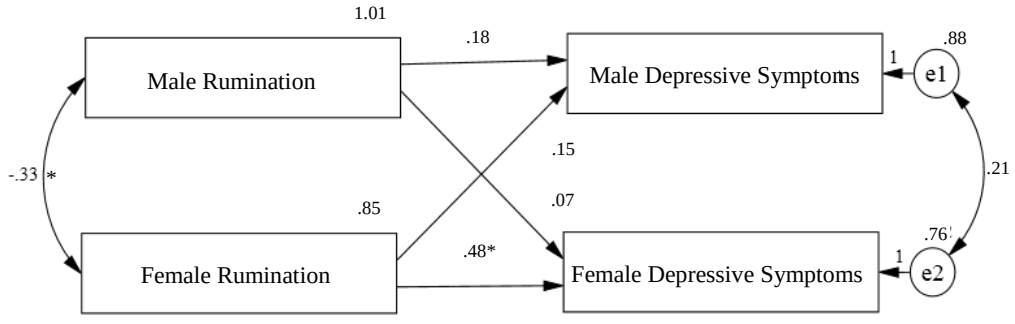


Figure 3.2. Effect of rumination on depressive symptoms within a couple dyad, Study 3.

Note. Unstandardised path coefficients are presented. * = $p < .05$.

Negative emotion. As can be seen in Figure 3.3, at an individual level, rumination associated with higher levels of negative emotion for both males ($p < .01$) and females ($p < .01$). At a dyadic level, one significant partner effect was identified. That was, higher levels of rumination in males was associated with higher levels of negative emotion in females ($p < .01$). Higher rumination in females was not significantly associated with higher negative emotion in males.

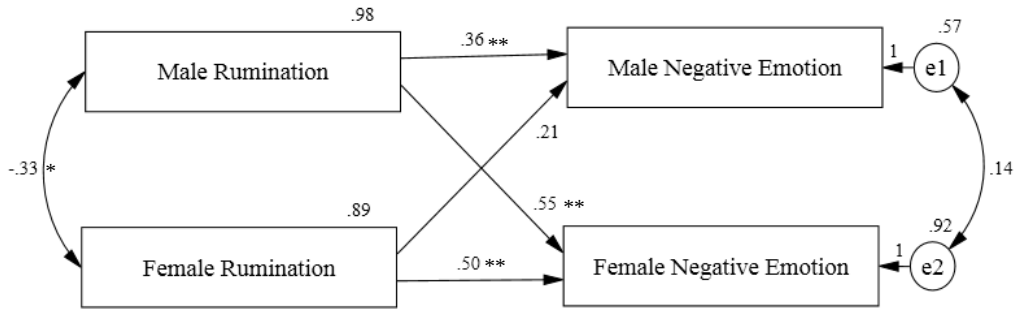


Figure 3.3. Effect of rumination on negative emotion within a couple dyad, Study 3.

Note. Unstandardised path coefficients are presented. * = $p < .05$, ** = $p < .01$.

The Interpersonal Consequences of Rumination at an Individual and Partner Level

It was hypothesised that at an individual level rumination would be associated with greater negative interpersonal consequences for both males and females (significant actor effects). It was also hypothesised that rumination in one partner would result in greater negative interpersonal consequences for the other partner for both males and females (significant partner effects). Five measures were used to assess possible negative interpersonal consequences: Relationship satisfaction (PRQC), negative emotions in the relationship (RES), and relationship conflict, relationship support and relationship depth (QRI). The analyses for each of these dependent variables are presented below.

Relationship satisfaction. Figure 3.4 displays the APIM used to investigate the relationship amongst male and female levels of rumination and relationship satisfaction. Results indicated a significant actor effect for females, with higher levels of rumination associated with lower levels of relationship satisfaction (p = .03). Contrary to the hypothesis, a significant actor effect was not identified for males. Furthermore, no significant partner effects were identified for males or females.

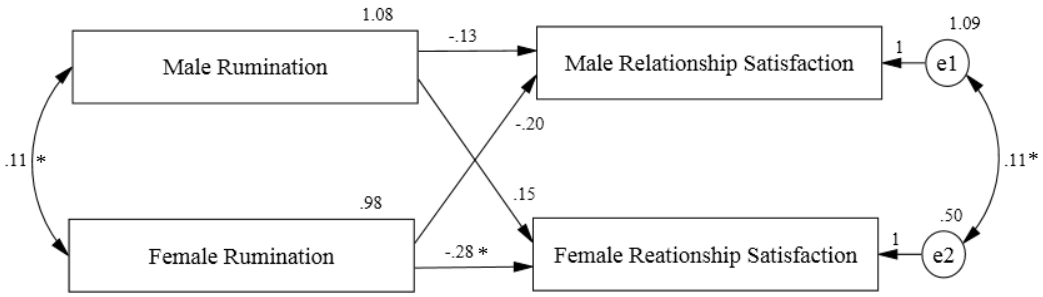


Figure 3.4. Effect of rumination on relationship satisfaction within a couple dyad, Study3.

Note. Unstandardised path coefficients are presented. * = p < .05.

Negative emotions in the relationship. As can be seen in Figure 3.5, higher levels of rumination were significantly associated with higher levels of relationship related negative emotion for both males (p > .01) and females (p = .02). One significant partner effect was identified. That was, for males, higher rumination in their partner was associated with higher levels of relationship related negative emotion (p = .02).

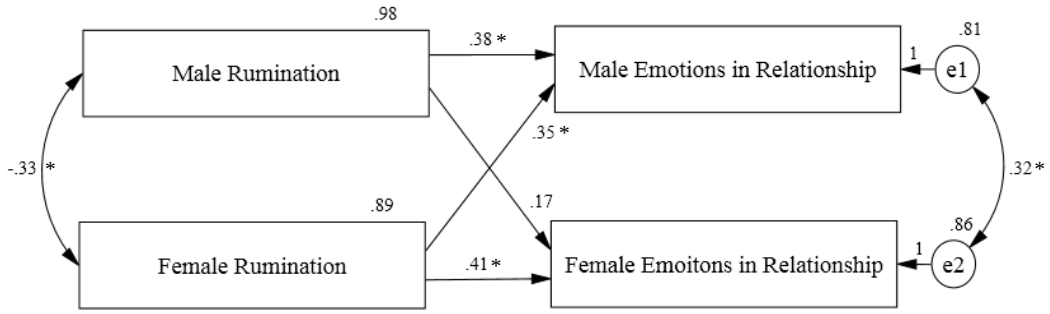


Figure 3.5. Effect of rumination on level of negative emotion felt when thinking about the relationship within a couple dyad, Study 3.

Note. Unstandardised path coefficients are presented. * = $p < .05$.

Relationship conflict. Contrary to the hypothesis, no significant actor effects for males or females were identified between rumination and relationship conflict. As can be seen in Figure 3.6, however, higher levels of female rumination were associated with higher levels of reported conflict by males ($p = .04$). In contrast, higher levels of rumination in males were associated with lower levels of conflict in females ($p = .03$).

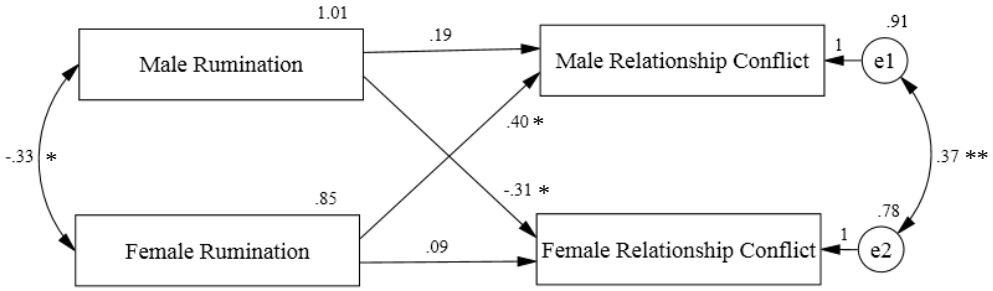


Figure 3.6. Effect of rumination on relationship conflict within a couple dyad, Study 3.

Note. Unstandardised path coefficients are presented. ** = $p < .01$, * = $p < .05$.

Perceived relationship support. Figure 3.7 displays the APIM used to investigate the relationship between rumination and perceived relationship support. Contrary to the hypothesis, no significant actor or partner effects were identified.

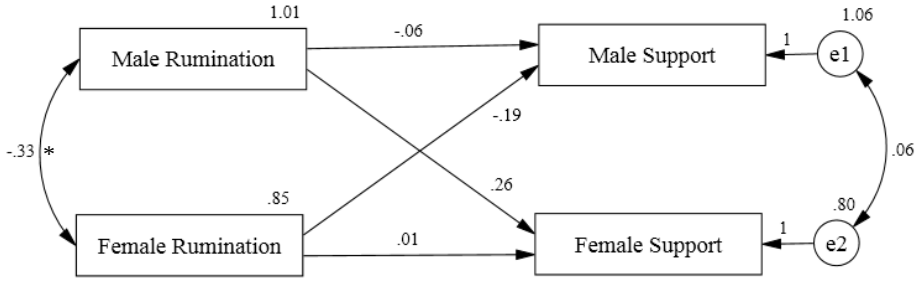


Figure 3.7. Effect of rumination on relationship support within a couple dyad, Study 3. *Note.* Unstandardised path coefficients are presented. * = $p < .05$.

Relationship depth. Contrary to the hypothesis, Figure 3.8 indicates that when looking at the association between rumination and relationship depth, rumination was not significantly associated with relationship depth at an individual level. Similarly, at a dyadic level, rumination in one partner was not significantly associated with levels of relationship depth in the other. These results held for both males and females.

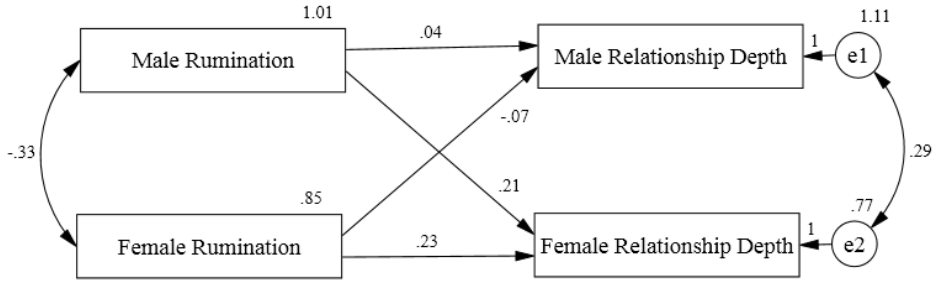


Figure 3.8. Effect of rumination and relationship depth within a couple dyad, Study 3. *Note*. Unstandardised path coefficients are presented. * = $p < .05$.

Response Style Pairing

Post hoc analysis was conducted to determine whether individuals were more likely to pair with another individual with a similar rumination style. This was done by using a gender specific median split of individuals' rumination scores to categorise them into high and low ruminating groups[8]. As can be seen in Table 3.5, chi square analyses indicated no pattern to the pairing, χ^2 (1, N = 40) = 0.90, p =.34.

Table 3.5

Chi Square Looking at Response Style Pairing among Males and Females in a Romantic Relationship (Study 3, Student Sample)

		Rumination (female)		
		Low	High	Total
Rumination (male)	Low	8 (20%)	12 (30%)	20 (50%)
	High	12 (30%)	8(20%)	20 (50%)
	Total	20 (50%)	20 (50%)	

Summary of Study 3

Emotional and Interpersonal Consequences of Rumination for the Individual

Greater rumination was associated with greater depressive symptoms for females, but not males. For both males and females, rumination was associated with greater negative emotion.

Mixed results were found regarding the negative effect of rumination on interpersonal feelings. In line with the hypotheses, higher rumination was associated with greater

[8] A gender specific split was used because females had significantly higher levels of rumination than males

negative emotion felt when thinking about the relationship for both males and females. For females, rumination was also associated with lower relationship satisfaction. Contrary to the hypotheses, rumination did not impact the experience of relationship depth, relationship conflict, or perceived support for males or females.

Emotional and Interpersonal Consequences of Rumination for the Partners of Ruminators

Results regarding the consequences of one partner's rumination on the other partner's experience of emotion were mixed. Contrary to the hypothesis, one partner's level of rumination was not found to influence the other's level of depressive symptoms for males or females. As expected, females with a high ruminating partner reported greater negative emotion. A high ruminating partner, however, did not affect the negative emotion experienced by males.

Mixed results were also found when looking at the interpersonal consequences of rumination for the partners of high ruminators. Supporting the hypothesis, for males, having a high ruminating partner resulted in greater levels of negative emotion when thinking about one's relationship and greater relationship conflict. Contrary to expectations, females appeared to find some benefit from having a high ruminating partner with greater rumination in their partner associated with lower relationship conflict. Also contrary to expectations, having a high ruminating partner was not found to affect the other partner's experience of relationship satisfaction, relationship support or relationship depth.

Study 4 (Adult Community Sample)

Study 3 indicated that rumination not only affects the individual who is ruminating, but that in some cases it also affects the experiences of a romantic partner. With no other research having explored the consequences of rumination for the partners of ruminators, it is essential that further research confirm the consequences of rumination identified in Study 3 by replicating these findings. Study 4 attempted to do this by examining these variables within an adult community sample. There were several reasons for shifting attention to an adult community sample. Firstly, questions have been raised over the generalisability of findings from student samples to the population as a whole, due to students' higher level of education, stronger cognitive skills, and limited age range (Peterson, 2001). Students have also been found to have less life experiences, less crystallised attitudes, and a less formulated sense of self than the general population (Sears, 1986). Student samples have also been found to be more homogeneous, resulting in less variability in responding (Peterson, 2001). Secondly, given their younger age, students have been found to evidence less stability in their relationships (Sears, 1986). Given that the focus of the current study is on the broader consequences of rumination for one's romantic partner, it was therefore felt it was important to also look at a group known for greater stability in their relationships and more likely to also evidence a greater length of relationship and to potentially have greater experience in relationships. This is because attitudes towards relationships and thoughts about what makes a great relationship have been found to change with age and experience (Frazier & Esterly, 1990). In addition less experience in relationships has been associated with additional variables that may influence the contribution of rumination, such as greater feelings of anxiety in the early stages of a new relationship (Margolese et al., 2005).

Method

Studies 4 and 5 were run simultaneously with the same group of participants. Study 4 is described here. Study 5 is described in the following chapter. In this method section, participant information for both studies is described, and procedural information for Study 4 only is noted.

Participants

Fifty three heterosexual couples aged 18 and over, and in a relationship of two months or longer volunteered to participate in this study. Couples were recruited from the Canterbury community via posters placed in 14 public libraries and eight supermarket notice boards around Christchurch. The study was also advertised in the local newspaper and by posters placed in the tea rooms of several Christchurch workplaces (see Appendix M). Each member of a couple received a $10 gift voucher to compensate them for their time. Table 4.1 summarises the demographic characteristics of this sample. As can be seen in Table 4.1, the average age of both females and males was 29 years. The average length of couples' relationships was 7 years 1 month. The sample was primarily New Zealand European. Approval for this study was given by the Upper South B Regional Ethics Committee (Ethics number URB/10/08/030).

Table 4.1

Sample Characteristics, Study 4 (Community Sample)

Variable	Males Mean (*SD*) or *N* (%)	Females Mean (*SD*) or *N* (%)
Sample Number	53 (50%)	53 (50%)
Mean age (years)	29.85 (12.51)	28.68 (12.38)
Age range (years)	18-70	18-67
Ethnicity (Percentage of sample is indicated in parentheses)		
New Zealand European	37 (69.8)	37 (69.8)
Maori	1 (1.9)	0 (0.0)
Samoan	0 (0.0)	1 (1.9)
European	8 (15.1)	6 (11.3)
South African	0 (0.0)	2 (3.8)
North American	1 (1.9)	1 (1.9)
Chinese	3 (5.7)	0 (0.0)
Indian	0 (0.0)	1 (1.9)
Other	3 (5.7)	5 (9.4)
Present Relationship status (Percentage of sample is indicated in parentheses)		
In a relationship (not living with partner)	16 (30.2)	16 (30.2)
In a relationship (living with partner)	37 (69.8)	37 (69.8)

Measures

Participants completed the same set of online questionnaire completed by participants in the student sample (Study 3). Higher scores on all measures reflected greater levels of each variable.

Procedure

Interested participants contacted the researchers and were emailed the information sheet (see Appendix N), consent form (see Appendix O), and the link to an online survey. Each participant was asked to complete the questionnaires by themselves in an environment where they had few distractions. Participants were asked to please not discuss their responses with their partner until after the completion of the study.

Statistical Analysis

All data were entered into a Microsoft ACCESS (2007) database. Ten percent of the questionnaire booklets were randomly selected and data entry checked. Data were transferred into SPSS (IBM, 2009) for statistical analysis. All data were examined for anomalies and normality of distribution explored for males and females individually (see Appendix P). As the sample was less than 100 the Sharipo-Wilk statistic was used to assess normality. Rumination (RRQ) was the only variable to fit a normal distribution. Depressive symptoms (CESD), and conflict (QRI) were transformed using a square root transformation. Relationship satisfaction (PRQC) was squared; negative emotion (BMIS) was transformed using a log transformation and relationship support (QRI) a log reflection. Data for relationship depth (QRI) were transformed with an inverse reflection. One variable (emotions about one's relationship (measured by the RES)), was unable to be normed. Results with transformed variables are reported where possible.

As with the student sample, the current study analysed couples data using the APIM. In line with Kenny and Cook's (1999) recommendations, all data were standardised using the sample grand mean and standard deviation. APIM models were assessed using AMOS software (Analysis of Movement Structures, Arbuckle & Wothke, 1999). As the APIM is a saturated model tradition model fit statistics were not reported (Cook & Kenny, 2005).

Results

Sample Characteristics

Table 4.2 reports the descriptive statistics and reliability coefficients for males and females' responses to each of the measured mood and interpersonal variables. To test the difference between male and female responses, *t* tests were conducted. As can be seen in Table 4.2, males and females did not significantly differ on any of the study variables. Cronbach alphas for this sample indicated good reliability, ranging from .72 to .89.

Table 4.2

Rumination, Depressive Symptoms, and Interpersonal Feelings, by Gender (Community Sample)

	Males			Females				
Measure	α	*M*	*(SD)*	α	*M*	*(SD)*	*t*	*p*
Rumination	.88	36.91	(8.48)	.87	39.15	(7.46)	-1.45	.15
Depressive symptoms	.79	9.55	(5.99)	.86	9.74	(6.46)	-0.16	.88
Negative emotion	.79	18.15	(6.79)	.78	18.66	(7.30)	-0.37	.71
Relationship satisfaction	.82	37.06	(4.43)	.86	36.38	(5.31)	0.72	.48
Negative emotions in relationship	.77	11.24	(2.84)	.83	11.41	(3.61)	-0.30	.79
Conflict	.82	1.85	(0.40)	.84	1.83	(0.47)	0.28	.78
Support	.76	3.54	(0.42)	.72	3.50	(0.43)	0.49	.62
Depth	.89	3.58	(0.44)	.84	3.60	(0.44)	-0.26	.80

Note. (*df*) = 104 in all cases.

The correlations for both males and females' scores on all variables are reported in Table 4.3. For both males and females, higher levels of rumination were associated with higher levels of depressive symptoms. In addition, for males, higher levels of rumination were associated with greater negative emotion, conflict, and negative emotion about the relationship.

Table 4.3

Correlations Among Rumination, Depressive Symptoms, Negative Emotion, and Interpersonal Feelings (Community Sample)

	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]
Female Rumination [1]	.01	.43**	-.11	.19	-.05	.26	.26	.03	-.08	.08	-.02	.08	-.00	.09	-.10
Male Rumination [2]		-.06	.53**	.03	.33*	-.08	-.18	.19	.33*	.19	.31*	.12	.19	-.04	.17
Female Depressive symptoms [3]			.09	.32*	.08	-.16	.05	.04	.06	.17	-.03	.38*	-.02	.01	.09
Male Depressive symptoms [4]				-.11	.43**	-.18	-.37**	.21	.40**	.17	.29*	.16	.38**	-.18	.02
Female Negative emotion [5]					.36**	-.05	.07	.35*	.30*	.32*	.19	.29*	.01	.11	.02
Male Negative emotion [6]						-.02	-.12	.31*	.61**	.13	.14	.06	.13	-.14	-.06
Female Relationship satisfaction [7]							.67**	-.38**	-.20	-.41**	-.29*	-.64**	-.36**	.66**	.28*
Male Relationship satisfaction [8]								-.24	-.26	-.34*	-.46**	-.38**	-.53*	.61**	.40**
Female Negative emotions in relationship[9]									.55**	.49**	.32*	.30*	.24	-.22	-.13
Male Negative emotions in relationship [10]										.27	.21	.11	.12	-.18	.07
Female Conflict [11]											.55	.58**	.33*	-.24	-.14
Male Conflict [12]												.35*	.60**	-.12	-.22
Female Support [13]													.44**	-.47**	-.24
Male Support [14]														-.42**	-.54**
Female Depth [15]															.57**
Male Depth [16]															-

Note. ** < *p* 0.01, * < *p* 0.05.

Results of the omnibus test of distinguishability are presented in Table 4.4. This analysis assesses whether data for couples can be viewed as empirically distinguishable or not. As can be seen in Table 4.4, results confirmed the distinguishability of the current data with significant chi squares found across all study variables.

Table 4.4

Results for the Omnibus Test of Distinguishability (Community Sample)

Measure	Chi Square	*p*
Depressive symptoms	13.67	.03
Negative emotion	24.98	< .01
Relationship satisfaction	34.59	< .01
Negative emotions in relationship	33.71	< .01
Relationship conflict	28.37	< .01
Relationship support	27.93	< .01
Relationship depth	26.55	< .01

Note. (*df*) = 6 in all cases.

The Emotional Consequences of Rumination at an Individual and Partner Level

Two measures of emotion were assessed: depressive symptoms (CESD) and negative emotion (BMIS). The analyses for these two dependent variables are presented below.

Depressive symptoms. As can be seen in Figure 4.1, for both males and females, higher levels of rumination were significantly associated with greater depressive symptomatology at an individual level ($p < .01$ for both males and females). Contrary to

the hypothesis, neither males nor females' level of rumination was found to affect their partner's level of depressive symptoms.

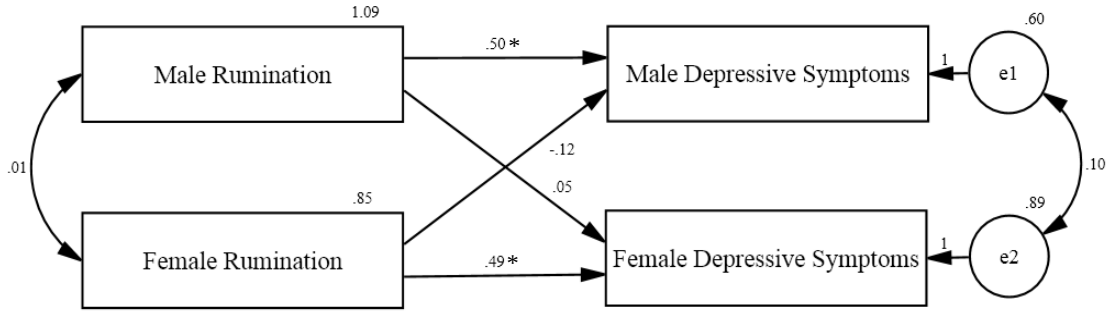


Figure 4.1. Effect of rumination on depressive symptoms within a couple dyad, Study 4.

Note. Unstandardised path coefficients are presented. * = $p < .05$.

Negative emotion. Figure 4.2 displays the APIM for rumination and negative emotion. In line with expectations, results indicated a significant actor effect for males, with higher rumination associated with higher levels of negative emotion ($p = .01$). Contrary to expectations, for females, higher rumination was not significantly associated with higher levels of negative emotion. No significant partner effects were found for males or females.

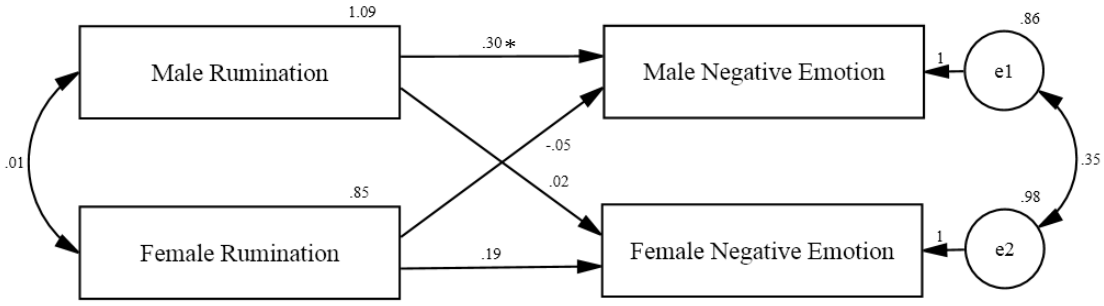


Figure 4.2. Effect of rumination on negative emotion within a couple dyad, Study 4.

Note. Unstandardised path coefficients are presented. * = $p < .05$.

The Interpersonal Consequences of Rumination at an Individual and Partner Level

As with the student sample, it was hypothesised that at an individual level rumination would be associated with greater negative relationship consequences (significant actor effects). In addition, it was hypothesised that higher levels of rumination in one partner would result in greater negative relationship consequences for the other partner (significant partner effects). The same five relationship variables assessed for students were assessed here: relationship satisfaction (PRQC), negative emotions in the relationship (RES), and relationship conflict, relationship support and relationship depth (QRI). The analyses for each of these dependent variables are presented below.

Relationship satisfaction. As can be seen in Figure 4.3, higher levels of rumination in females was associated with greater levels of relationship satisfaction (p = .05). Rumination was not significantly associated with relationship satisfaction for males. When looking at partner effects, Figure 4.3 indicates that greater rumination in males was associated with significantly greater relationship satisfaction in females (p = .04). Rumination in females was not significantly associated with greater relationship satisfaction in males.

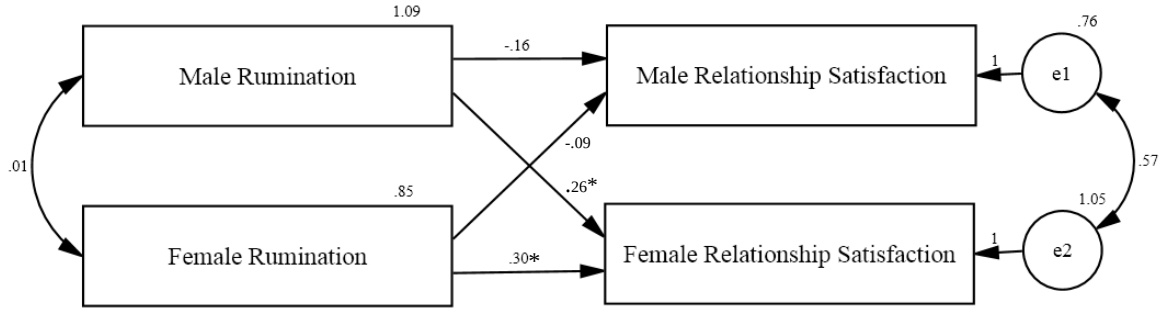


Figure 4.3. Effect of rumination on relationship satisfaction within a couple dyad, Study4.

Note. Unstandardised path coefficients are presented. * = p < .05.

Negative emotions in the relationship. Figure 4.4 indicates higher levels of rumination were significantly associated with higher levels of negative emotion felt when thinking about one's relationship for males (p = .01) but not for females. Higher rumination in one partner was not associated with higher levels of relationship related negative emotion in the other.

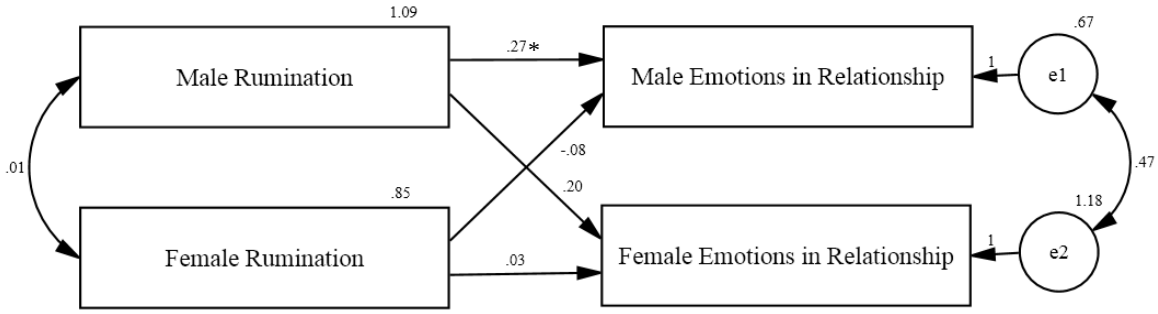


Figure 4.4. Effect of rumination on levels of negative emotion felt when thinking about the relationship within a couple dyad, Study 4.

Note. Unstandardised path coefficients are presented. * = $p < .05$.

Relationship conflict. The APIM for rumination and relationship conflict is displayed in Figure 4.5. Figure 4.5 indicates that a significant actor effect was identified for males (p = .02) but not for females. That is, higher levels of rumination were associated with higher levels of relationship conflict for males but not females. No significant partner effects were identified; suggesting one partner's levels of relationship conflict was not influenced by the other partner's levels of rumination.

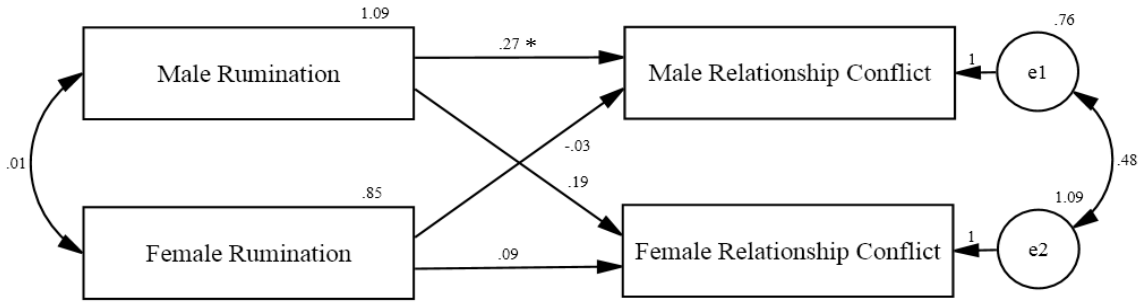


Figure 4.5. Effect of rumination on relationship conflict within a couple dyad, Study 4.*Note.* Unstandardised path coefficients are presented. * = $p < .05$.

Perceived relationship support. Contrary to the hypothesis, no significant actor nor significant partner effects were found when looking at the relationship between rumination and perceived relationship support (see Figure 4.6).

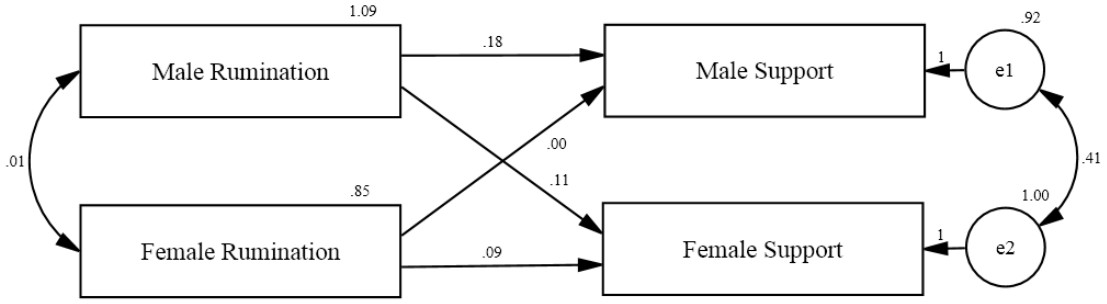


Figure 4.6. Effect of rumination on relationship support within a couple dyad, Study 4. *Note.* Unstandardised path coefficients are presented. * = $p < .05$.

Relationship depth. Figure 4.7 displays the APIM for rumination and relationship depth. As with perceived support above, no significant actor or partner effects were identified.

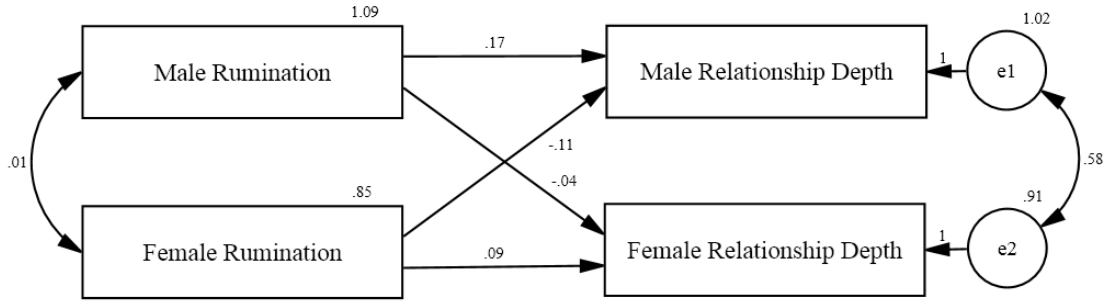


Figure 4.7. Effect of rumination on relationship depth within a couple dyad, Study 4.

Note. Unstandardised path coefficients are presented. * = $p < .05$.

Response Style Pairing

As with the student sample, a post hoc analysis was conducted to determine whether individuals were more likely to pair with another individual with a similar rumination style to theirs or a different one. As can be seen in Table 4.5, a chi square analysis was in line with the findings from Study 3, participants in the current study showed no significant pairing based on ruminative style, χ^2 (1, N = 53) = 0.17, p =.68.

Table 4.5

Chi Square Looking at Response Style Pairing among Males and Females in a Romantic Relationship (Community Sample)

		Rumination (female)		
		Low	High	Total
Rumination (male)	Low	12 (23%)	14 (26%)	26 (49%)
	High	14 (26%)	13 (25%)	27 (51%)
	Total	26 (49%)	27 (51%)	

Summary of Study 4

The Emotional and Interpersonal Consequences of Rumination for the Individual

As hypothesised, males and females with higher levels of rumination were found to experience greater depressive symptoms. Males who ruminated were also found to experience greater levels of negative emotion. Contrary to the hypothesis, rumination in females was not associated with greater levels of negative emotion.

Results regarding the interpersonal consequences of rumination for the individual were mixed. As hypothesised, rumination in males was associated with greater negative feelings when thinking about the relationship and greater perceived relationship conflict. Contrary to expectations, rumination in females was associated with greater feelings of relationship satisfaction. Rumination was not found to affect males nor females' levels of relationship depth and perceived relationship support.

The Emotional and Interpersonal Consequences of Rumination for the Partners of Ruminators

Contrary to the hypotheses, rumination in one partner was not found to influence the emotions of the other partner, with no effect on depressive symptoms or negative emotion identified. Results for interpersonal consequences were also contrary to expectations. Greater rumination in males was associated with greater relationship satisfaction in females. In regards to relationship depth, support, conflict, and negative feelings felt when thinking about one's relationship, no additional consequences of rumination in one partner on these interpersonal experiences for the other were identified.

General Discussion for Studies 3 and 4

Similarities and Differences between Student and Community Samples

Consequences of rumination for the individual.

Emotional consequences. Across both samples, females who ruminated experienced greater depressive symptoms. For males, however, rumination was only associated with depressive symptoms for those in the community sample. In contrast, across both samples, rumination was associated with negative emotion for males. For females, however, rumination was associated with negative emotion for students only. These findings are largely in line with the literature which has indicated individuals who ruminate experience greater depressive symptoms (Nolen-Hoeksema, 1991). They also further support the conclusions drawn from Studies 1 and 2 which suggest that rumination is a cognitive mechanism that has implications for negative emotion more broadly, as opposed to depressive symptoms specifically.

A slight gender difference was noted with the association between rumination and depressive symptoms appearing more prominent for females across both samples, while for males the association between rumination and negative emotion appeared more prominent. Gender differences in emotion recognition may account for these differences with research indicating females have a greater emotional vocabulary than males, and a stronger ability to label their emotions (Goldshmidt & Weller, 2000; Nolen-Hoeksema, 2012; Thayer, Rossy, Ruiz-Padial, & Johnsen, 2003). These differences are thought to arise from differences in traditional gender roles with females socialised to value connectedness and relationships, while males are socialised to value independence. For females, this focus on relationships results in an encouragement to be attentive both to

their own emotions and the emotions of others. As a result, it follows that females are more likely to be aware of their emotional states and better able to specifically describe the emotions they are feeling, as compared to males (Nolen-Hoeksema, 2012). In regards to Studies 3 and 4, this would suggest females would be more likely to report feeling specifically depressed, while males would be more likely to report feeling generally negative. Such a possibility, in turn, has implications for the expansion of response style theory, as it again highlights the importance of the content of ruminative thought, with rumination not increasing depressive symptoms specifically, but rather appearing to intensify the experience of the specific emotion that is focused on.

Another possibility for the slight gender difference observed here is that results are reflective of the literature which indicates that the association between rumination and depression for males is not as strong as that for females (Nolen-Hoeksema & Girgus, 1994; Nolen-Hoeksema & Jackson, 2001). Lastly, it is also possible that the difference in the consequences of depressive symptoms for males is due to the greater depressive symptoms reported by community males (M = 9.55 vs M = 7.75 for males in the student sample). While both scores were well below the depression cut-off of 16, research indicates that the association between rumination and depression is stronger when depressive symptoms are higher (Lyubomirsky & Nolen-Hoeksema, 1995; Morrow & Nolen-Hoeksema, 1990).

Interpersonal consequences. Similarities and differences in the interpersonal consequences of rumination between samples were observed. In regards to the similarities identified, males who ruminated reported greater negative feelings when thinking about their relationships. Rumination did not affect the experience of relationship satisfaction

for males, or relationship conflict for females in either sample. Rumination was not found to affect their experience of relationship support or relationship depth for males or females in either sample.

When looking at the differences between samples, female students who ruminated reported lower relationship satisfaction and increased negative emotions felt when thinking about the relationship. For community females the opposite was true, with rumination associated with greater relationship satisfaction, and not associated with negative emotion felt when thinking about the relationship. For males, differences in the experience of conflict were noted, with rumination associated with conflict for community males but not student males.

The results above that indicate rumination is associated with negative interpersonal consequences are in line with the findings of Study 2 which indicated rumination was correlated with greater relationship conflict and lower relationship support and depth. Together, both findings increase our understanding of the consequences of rumination by again confirming rumination appears to function as a cognitive mechanism that increases any feelings attached to the thoughts an individual is ruminating on.

One question raised by the current findings is why rumination did not have an effect on relationship depth or perceived support. The absence of an association between rumination and social support is particularly puzzling given the literature has indicated that ruminators perceive significant others as less supportive and more critical (Nolen-Hoeksema & Davis, 1999; Spasojevic & Alloy, 2001). One possibility is that additional factors unique to relationship depth and perceived support meant the association between

rumination and these variables was not as robust as the association between relationship satisfaction and negative feelings about the relationship. Another possibility is that results are due to limitation with the Quality of Relationships Inventory (QRI) which assessed both variables. Although the QRI has been found to evidence good reliability and validity (Pierce et al., 1991), future studies could investigate this possible limitation by using an alternative measure of support and depth.

Another question raised by the current findings was why rumination negatively impacted relationship satisfaction for student females, while positively impacting relationship satisfaction for community females. A possible explanation for this finding is found in the research of Margolese et al. (2005), who as has been noted previously, concluded adolescents' lack of relationship experience and increased feelings of vulnerability in the context of a romantic relationship made them more susceptible to the consequences of rumination. It is therefore possible student and community females experienced differences in the consequences of rumination because of their differences in age and relationship length. The average age of female students was 24 years, and the average relationship was 2 years 4 months. In the community sample the average age of females was 29 years, and the average relationship length was 7 years 1 month. While post hoc analyses indicated that results did not change across either sample when relationship length and age were controlled for, the literature has indicated that these variables are often associated with additional factors such as differences in the perception of what a good relationship looks like (Frazier & Esterly, 1990). It is possible that these variables and others that were not measured in the current study may have played a subtle role in differentiating the samples. Other variables, for example, could include the possibility that rumination had a lesser effect on interpersonal variables among those with greater

relationship experience because they had a greater understanding of what made them happy in a relationship, a greater trust in their partner, and a greater sense of security in regards to the stability of their relationship. Such a possibility again highlights the importance of considering the context in which rumination occurs as a possible contributor to the consequences of ruminative thought.

Consequences of Rumination for the partners of high ruminators. At the heart of Studies 3 and 4 was the question of whether one individual's rumination had consequences for their partner. Results were mixed. Of those findings that did support the hypothesis, differences in the consequences of a ruminating partner for students and community participants were observed. Post hoc analyses, controlling for age and relationship length were completed. No changes in results were identified.

Emotional consequences. Minimal support was found for the hypothesis that rumination in one partner would be associated with greater depressive symptoms and negative emotion in the other. Across both samples, the only significant finding indicated was that rumination in male students was associated with greater negative emotion in their female partners. This finding is line with the literature reviewed at the start of this chapter which proposed that the consequences of rumination may be transmitted from one partner to another. Possibly accounting for this transmission is the interpersonal characteristics of ruminators which increase the likelihood of negative interactions with others (Lam et al., 2003). Further, emotion contagion (Hatfield et al., 1994) may also account for this transmission of the consequences of rumination, with one partner mimicking the negative expressions of the other. Given this literature, the fact that student females nor community males or females evidenced no negative consequences from a ruminating partner is

slightly puzzling. As discussed in more depth below, this may be explained by the context in which rumination occurs, with the consequences of rumination for one's partner influenced by factors such as the quality of one's relationship.

Interpersonal consequences. Regarding interpersonal consequences, similarities across samples were noted with rumination in one partner not associated with feelings of relationship depth or relationship support for students or community adults. Differences were also observed. For students, one partner's rumination was associated with increased feelings of conflict for both males and females. Rumination in females was also associated with greater negative emotions in the relationship for males. These same relationships were not identified in the community sample. In turn, while females in the community sample were found to experience greater relationship satisfaction if their partner was a ruminator, females in the student sample were not.

These findings are largely in line with the proposal that the interpersonal characteristics of ruminators themselves result in negative feelings being experienced by their partners. Two exceptions to this proposal, however, were noted. Firstly, student females reported lower relationship conflict if their partner was a high ruminator. Secondly, community females reported greater relationship satisfaction if their partner was a high ruminator. It is possible that this difference in the consequences of rumination between females in each sample is again reflective of differences in relationship experience and the associated underlying unmeasured variables that relate to this, for example, perceptions of what makes a good relationship and one's levels of comfort in their current relationship.

It is notable that several consequences of rumination for the partners of ruminators' were identified in the student sample, while only one consequence of having a high ruminating partner was identified in the community sample. Perhaps this indicates that findings from students do not generalise. One reason for this difference between samples may again have been differences in the life experiences and relationship length of those in the community sample. It is possible these experiences may have fostered a greater understanding of one's partner that decreased the influence of rumination. For example, if an individual has a high ruminating partner who they have lived with for several years, that individual may be more familiar with their partner's ruminative thinking and have developed different strategies for managing ruminative thinking that reduce their vulnerability to threats posed by it. Another possibility is that students and community adults perceived rumination differently, due to their different relationship experiences. Female community adults, for example, may have perceived rumination in their partner as a positive quality, showing care and thought. Supporting this, research has shown that women are happy when their partner understands that they are upset (Cohen, Schulz, Weiss, & Waldingner, 2012). Female students, on the other hand, who were more likely to be in the early stages of their relationship (as compared to community adults), may have perceived their partner's rumination as a relationship threat, as it indicated their partner was unhappy with something in the relationship.

Explanation of Gender Differences Identified in the Emotion and Interpersonal Consequences of Rumination

Consequences of rumination for the individual. Gender differences in the effect of rumination on relationship satisfaction were observed. Specifically, while rumination was found to have consequences for the relationship satisfaction of females, it did not

have any effect on the relationship satisfaction of males across both samples. It is possible this difference is reflective of the literature previously noted which indicated that due to their greater emotional vocabulary females are better able than males to specifically describe how they are feeling (Bosacki & Moore, 2004; Goldshmidt & Weller, 2000; Nolen-Hoeksema, 2012; Thayer et al., 2003). In this case, it would follow that while females may be more likely to report feeling dissatisfied in their relationship, males may be more likely to report feeling generally negative when thinking about their relationship. As evidence of this, across both samples, while rumination did not affect males' feelings of relationship satisfaction, it did affect the emotion they felt when thinking about the relationship. Thus, like females, rumination did affect males' feelings about their relationship, but at a broader level when asked more widely about feelings of depression, annoyance, frustration, hurt, loneliness and disappointment with their partner, as opposed to dissatisfaction specifically. An alternative possibility is that females' socialisation to value connectedness may make them more vulnerable than males to experiencing negative interpersonal consequences when relationships are threatened by negative patterns of repetitive negative thinking. This is because the rumination is targeting a core value for females but not for males.

Consequences of rumination for the partners of high ruminators. Results suggest gender differences may exist in the way males and females experience their partner's rumination. Results for male students supported the hypothesis that having a high ruminating partner results in greater dissatisfaction, higher conflict and more negative feelings about their relationship. For females, however, the consequences of having a high ruminating partner were mixed. For female students, greater rumination by their partner was associated with greater negative emotion but lower levels of relationship

conflict. For community females, a high ruminating partner was associated with greater relationship satisfaction. Given this distinct effect rumination has on one's romantic partner, it is interesting to note that individuals did not pair up according to their different rumination styles; that is, males did not tend to form a relationship with low ruminators, while females did not pair up with high ruminators.

Several possible reasons for the discrepancy between the emotional and interpersonal consequences for males and females are noted. Firstly, findings may be due to traditional gender roles in which females are socialised to value emotional closeness while males are socialised to value independence (Collins & Read, 1990). Given this, females may experience a high ruminating partner positively because they perceive their partner's rumination as an indicator that they value the relationship as they are spending time thinking about the relationship and how they are feeling. In turn, high ruminating males may be more likely to discuss their thoughts and feelings than low ruminating males, which meets females' greater closeness needs (Fletcher, 2002). Males, on the other hand, may perceive higher rumination in their partner as neediness. This, in turn, may lower their feelings about the relationship as it may threaten their independence needs. Males may also perceive high rumination in their partner as an indication they have done something to upset that partner, which, in turn, may cause them to feel stressed as they try to work out what it is their partner is thinking about. Future research looking at how individuals perceive rumination in their partners would be beneficial in exploring these possibilities.

Alternatively, differences may be due gender differences in the perceived value of different coping strategies. As noted previously traditional gender roles see females

socialised to value internalised coping strategies while males are socialised to value externalised and active strategies (Nolen-Hoeksema, 2012; Pearlin & Schooler, 1978). Females therefore, may be more likely to see rumination as an acceptable strategy for regulating emotions and dealing with worries or concerns. Males, on the other hand, may be less accepting of rumination as an emotion regulation strategy as they want to manage the emotion by solving the problem. This in turn may result in higher levels of frustration in males as they perceive the problem to be dragged out rather than resolved quickly.

Overall, the presence of gender differences in the consequences of rumination for the partners of high ruminators again highlights the importance of considering the context in which rumination occurs and the role of different contributors that add to the consequences of rumination.

Implications

Findings from the student sample expand what is known about rumination by suggesting that the decision to engage in rumination as a strategy for regulating emotion not only results in negative consequences for the individual, but that it also has negative implications for the romantic partner of that individual. Findings from the community sample add to this by suggesting greater rumination in males is associated with greater relationship satisfaction in their partners. The differences identified between student and community samples hold important implications; they suggest that whether a partner's rumination negatively affects the other may depend on additional variables that arise out of relationship experience (e.g. opinions about what makes a good relationship). Given the importance of romantic relationships and the amount of time romantic couples spend together, further research would appear to be essential in helping to tease out in what

circumstances and in what type of relationships one partner's rumination may be detrimental for the other.

Practical implications also arise. For clinicians, we are reminded of the importance of considering the context in which a client lives, and the influence of a client's social circle when answering questions such as "why is this person depressed?" and "why are they unhappy in their interpersonal functioning?" In addition, for clinicians, results again highlight the importance of addressing rumination with a client, particularly in a student setting, as reducing ruminative thinking likely not only has benefits for the client, but also for their partner.

Strengths and Limitations

One of the strengths of the current studies was the investigation of rumination across two different samples. One of the main limitations was that both studies were correlational in nature. Therefore conclusions cannot be drawn regarding cause and effect. Another limitation was a difference in the sample characteristics of both studies. In line with the literature, female students reported greater levels of rumination and depressive symptom than males (Nolen-Hoeksema & Morrow, 1991; Nolen-Hoeksema et al., 1993). In contrast, no gender differences in the levels of rumination and depressive symptoms were identified in the community sample. Reflecting this difference, it was noted that while the student sample evidenced a greater number of emotional and interpersonal consequences of rumination for females, the community sample evidenced a greater number of emotional and interpersonal consequences of rumination for males. This finding is in line with the literature which suggests that while females are more likely to ruminate than

males, when males do ruminate they experience similar negative consequences (Butler & Nolen-Hoeksema., 1994; Garnefski et al., 2004).

Future Research

Across both samples rumination in one partner was associated with more interpersonal than emotional consequences for the other partner, suggesting interpersonal variables may be more susceptible to the influence of a partner's rumination. Perhaps this is because these variables are more immediately related to one's partner (as they are feelings about one's partner). Given that the impact of partners' rumination had not been previously investigated, future studies are needed to confirm these suggestions. Future research is also needed to address the questions raised in this chapter regarding why the effects of having a high ruminating partner differ for students and community adults, and to also address what benefits females receive from a high ruminating partner that males do not. In doing this future studies would benefit from looking more specifically at how rumination in one's partner is experienced. For example, does one know when their partner is ruminating? If so, how do they know? How do they feel when their partner is ruminating? And, how do they interpret their partner's ruminations?

Rumination, by definition, is an individual process where one thinks about one's own thoughts, feelings and behaviours. Given Studies 3 and 4 have suggested this individual process has consequences that extend beyond the individual, another avenue for future research will be to explore what happens when ruminative thinking is shared. Investigating this possibility is important as it will provide further insight into the nature of rumination by revealing whether it is the repetitive *internal* nature of thought that is negative, or whether it is the process of repetition in general that is negative. Further, it

will also increase our understanding regarding the consequences of one partner's rumination on the other by revealing whether another mechanism by which the consequences of rumination are transmitted is because rumination is shared. These questions will be addressed in the next chapter.

Summary

Studies 3 and 4 increase or understanding of the implications of rumination by suggesting the emotional and interpersonal costs of this emotion regulation strategy are wide reaching. Building on the findings of Studies 1 and 2, the current findings further support the proposal that rumination is a cognitive mechanism that heightens any feeling attached to the content of one's ruminative thoughts. Specifically, findings from both samples suggest that if you are a high ruminator you experience greater depressive symptoms, negative emotion, relationship dissatisfaction, negative emotions when thinking about the relationship and relationship conflict. Findings also suggest that the consequences of rumination transfer between partners. More specifically, if you are a student male and your partner is a high ruminator you will experience greater levels of negative emotion when thinking about your relationship and greater levels of conflict. If you are a female student and your partner is a high ruminator you will experience greater levels of depressive symptoms and lower levels of conflict. Lastly, if you are a community female you will feel more satisfied in your relationship if your partner is a high ruminator. As with Studies 1 and 2, the importance of considering the context in which rumination occurs is again highlighted with the broader impact of one partner's rumination on the other more evident in the student sample.

CHAPTER 5

Sharing Rumination

The Emotional and Interpersonal Consequences of Ruminating Together with a Romantic Partner

---

While rumination is defined as an internal and individual process, recent research by Rose (2002) has suggested two people may regulate their emotion by verbally ruminating together. Rose (2002) refers to this process as co-rumination. Given studies 1, 2, 3, and 4 have indicated that the individual emotion regulation strategy of rumination is associated with several negative consequences for the individual who is ruminating, and that studies 3 and 4 have indicated rumination is also associated with several negative consequences for their romantic partner; the possibility of co-rumination raises several questions. For example, do individuals who ruminate internally also ruminate externally with their partner? And, are the emotional and interpersonal consequences of external rumination similar to the emotional and interpersonal consequences of internal rumination? These questions will be addressed in the following chapter. In doing this, the literature regarding co-rumination will firstly be reviewed and the rational for how looking at co-rumination will contribute to our understanding of rumination explained. Next, results for Study 5, which explored co-rumination between couples, will be presented and findings discussed.

Co-rumination

Co-rumination is defined as "extensively discussing and revisiting problems, speculating about problems, and focusing on negative feelings" with another individual (Rose, 2002, p. 1830). Two core components of co-rumination are identified: rumination and self-disclosure. Like rumination, co-rumination involves a repetitive, non-solution focus on

problems. Unlike rumination, co-rumination is an external, social, conversational process, where ruminative thoughts are excessively shared and discussed (Rose, 2002). Research has indicated self-disclosure (sharing personal thoughts and feelings) contributes to the development of close relationship bonds (Asher, Parker, & Walker, 1996). As a result, unlike rumination, the consequences of co-rumination are two sided. On the one hand, the repetitive nature and negative focus of co-rumination has been found to increase negative emotion. On the other hand, the self-disclosure that occurs with co-ruminating has been found to increase feelings of closeness and support (Rose, 2002; Rose, Carlson, & Waller, 2007).

In addition to their similar repetitive natures, co-rumination and rumination are alike in that both involve a strong negative focus (Rose, 2002). Unlike rumination, however, co-rumination involves a broader focus, with problems for the friend discussed, as well as problems for the individual (Rose, 2002). Also, unlike rumination, the repetitive nature of co-rumination is encouraged, not only by the individual, but also by the individual they are talking with. Taking these similarities and differences into account, Rose (2002) noted that while there was an overlap, co-rumination and rumination represent two independent constructs.

Review of the Co-rumination Literature

A search of the PSYC INFO database using the keyword "co-rumination" identified 16 studies. The majority of these studies (12) examined co-rumination in the context of a same-sex friendship. Of these 12 studies, nine focused on co-rumination in children and adolescents (Hankin, Stone, & Wright, 2010; Jose, Wilkins, & Spendelow, 2012; Rose, 2002; Rose et al., 2007; Smith & Rose, 2011; Starr & Davila, 2009; Stone, Hankin, Gibb,

& Abela, 2011; Stone, Uhrlass, & Gibb, 2010; Tompkins, Hockett, Abraibesh, & Witt, 2011), while three looked at adult same-sex friendships (Byrd-Craven, Geary, Rose, & Ponzi, 2008; Byrd-Craven, Granger, & Auer, 2011; Davila et al., 2012).

The nine studies looking at co-rumination in children and adolescents have all utilised a self-report methodology. Among these studies, co-rumination was consistently found to be associated with greater friendship satisfaction as well as greater internalising symptoms (symptoms of depression and anxiety, Hankin et al., 2010; Jose et al., 2012; Rose, 2002; Rose et al., 2007; Smith & Rose, 2011; Starr & Davila, 2009; Stone et al., 2011; Stone et al., 2010; Tompkins et al., 2011). Rose (2002), for example, found co-rumination amongst the same-sex friendships of 3rd, 5th, 7th, and 9th graders was associated with greater friendship satisfaction but also greater levels of depression and anxiety. Similarly, Smith and Rose (2011) found social perspective taking (the ability to understand a friend's point of view) and co-rumination among early adolescence (11 to 13 year olds) were both associated with greater friendship quality but also greater empathetic distress (strongly feeling the distress of a friend). This relationship was particularly strong for girls, with Smith and Rose (2011) concluding that greater social perspective taking and co-rumination in girls may explain why girls report closer friendships than boys, but also greater feelings of distress as they feel upset if their friend is upset.

These consequences of co-rumination have been found to hold over time (Hankin et al., 2010; Rose et al., 2007; Stone et al., 2011). Hankin, Stone, and Wright (2010), for example, found a reciprocal relationship between co-rumination and internalising symptoms over a four month period for boys and girls in their sample of 6th to10th graders. Rose et al. (2007) also found a reciprocal relationship between internalising

symptoms, friendship satisfaction, and co-rumination for the 3rd, 5th, 7th and 9th grade girls in their study. This same relationship, however, was not identified for boys, with co-rumination predicting closer friendships, but not greater internalising symptoms. Close friendships and internalising symptoms, however, were found to predict co-rumination (Rose et al., 2007). Lastly, Stone, Hankin, Gibb, and Abela (2011), found co-rumination amongst adolescents (11 to 15 year olds) predicted the onset, severity, and duration of depressive episodes over a two year period.

Unlike the other studies noted previously, Star and Davila (2009) also investigated the role of adolescents' (12 to 13 year olds) dating experience on co-rumination. Results indicated girls who were currently dating were more likely to co-ruminate with a friend than those who were not dating. Star and Davila (2009) suggested this may be because girls who were in a relationship had more to talk about. Results also indicated co-rumination predicted greater depressive symptoms over the course of a year for those with greater romantic experiences. This suggests that in addition to its repetitive nature, the content of co-rumination may be important, with co-rumination possibly more negative if it is associated with a negative experience (e.g. learning to navigate the world of romantic relationships). Such a finding is in line with the rumination literature and the results of Study 2, which indicated that ruminating on a negative event resulted in greater negative consequences than ruminating on a typical event.

Four studies in the literature have looked at co-rumination and same-sex friendships in an adult population (Byrd-Craven et al., 2008; Byrd-Craven et al., 2011; Ciesla, Dickson, Anderson, & Neal, 2011; Davila et al., 2012). Byrd-Craven et al. (2008) and Byrd-Craven et al. (2011) both investigated the effects of co-rumination on cortisol levels using an

experimental design. In their first study Byrd-Craven et al. (2008) gave participants (24 female dyads) a problem generation questionnaire which asked them to nominate three problems to discuss. Each dyad was then assigned to either a *problem talk* (discuss a problem as you normally would) or *control talk* (design a recreation centre together) condition. In the problem talk condition participants were asked to discuss a problem as they normally would. All discussions lasted 17minutes. Each discussion was taped and coded for co-rumination using Rose, Schwartz, and Carlson's (2005) co-rumination coding guidelines. Saliva samples for assessing cortisol levels were collected from each participant before the discussion began and 15 minutes after it finished. Results indicated greater cortisol levels after co-ruminating, suggesting that the process of co-rumination amplified participants' feelings of stress. (Byrd-Craven et al., 2008). Byrd-Craven et al. (2011) replicated these findings in a second study that looked at 44 female friendship dyads in a student population. Again, results indicated that observed co-rumination predicted increased cortisol levels (Byrd-Craven et al., 2011). Ciesla, Dickson, Anderson, and Neal (2011), looked at the association between self-reported co-rumination and alcohol use in sample of university students. Results indicated co-rumination was associated with increased weekly alcohol consumption for females but not males (Ciesla et al., 2011). Lastly, Davila et al. (2012) investigated the association between co-rumination and online social networking usage in a self-report sample of male and female university students. Results indicated co-rumination was associated both with greater depressive symptoms, as well as greater social network usage (Davila et al., 2012).

Co-rumination in other relationships. Only three studies have investigated the consequences of co-rumination outside the realm of same-sex friendships (Calmes & Roberts, 2008; Haggard, Robert, & Rose, 2011; Waller & Rose, 2009) . All three did so

using self-report designs. In their work looking at mother-adolescent dyads, Waller and Rose (2009) found adolescent girls were more likely to co-ruminate with their mothers than adolescent boys. This greater co-rumination, in turn, was found to predict a closer relationship but also a greater enmeshment, and symptoms of depression and anxiety (Waller & Rose, 2009). In their work looking at co-rumination in the work place, Haggard, Robert, and Rose (2011) found females were more likely to co-ruminate with colleagues than males. Gender differences in the consequences of this co-rumination were also reported. For females, co-rumination was associated with greater job dissatisfaction when it occurred in an environment in which negative interactions with their supervisor were more prevalent (abusive supervision). For males, on the other hand, co-rumination was associated with greater job dissatisfaction when abusive supervision was lower. For both males and females, co-rumination was associated with stronger work relationships. As was suggested by Star and Davila (2009), Haggard et al. (2011) note that the content of co-rumination may have played a role in influencing its consequences. That is, Haggard et al. (2011) suggested males' tendency to problem solve may have meant that the content of their co-rumination (which was not measured) may have had more of a problem focus. This in turn, may have protected them from the negative consequences of co-rumination when abusive supervision was high by giving them a significant problem to solve. When abusive supervision was low, however, the absence of a notable problem to discuss may have meant co-rumination had a greater negative effect as it drew attention to issues that they may not otherwise have thought about (Haggard et al., 2011).

Only one study (Calmes & Roberts, 2008) in the literature has investigated co-rumination in the context of an adult romantic relationship. Calmes and Roberts (2008) investigated the consequences of co-rumination across four different relationship settings: 1) a same-

sex friend, 2) a romantic partner (relationship must have been of at least one month), 3) a same-sex college roommate, and 4) a parent. Co-ruminating with a same-sex friend predicted greater friendship satisfaction, as well as greater depressive symptoms (but not anxiety) for females, but not males. Within this, the importance of the rumination component of co-rumination was highlighted with results indicating that the relationship between co-rumination and depression was no longer significant when rumination was controlled for. With regard to the other three relationships investigated, co-rumination with a parent was associated with significant anxiety, while co-rumination with a same-sex roommates or a romantic partner was not associated with any symptoms of depression or anxiety (Calmes & Roberts, 2008).

Gender differences in co-rumination. As with rumination (Nolen-Hoeksema, 1991), gender differences have been observed with girls found to co-ruminate more than boys (Rose, 2002). In line with Nolen-Hoeksema's (1991) suggestion that gender differences in rumination may explain gender differences in the prevalence of depression, Rose (2002) has proposed that gender differences in co-rumination may also have implications for our understanding of depression. Specifically, Rose (2002) has noted that girls greater tendency to co-ruminate may explain why they experience closer friendships than boys, yet these friendships do not appear to protect them from also experiencing greater levels of depression and anxiety (Rose, 2002). The review of the literature noted above has revealed mixed results regarding gender and co-rumination. On the one hand, Rose (2002), Rose et al. (2007), and Stone et al. (2011) all reported significant gender differences in the consequences of co-rumination with a friend, with females experiencing greater negative consequences. On the other hand, Hankin et al. (2010), and Stone et al. (2010) found no significant differences in the effects of co-rumination for males and

females. Three possible explanations for these discrepant findings are offered. First, it is well established in the literature that a 2:1 gender ratio in the frequency of depression emerges in early adolescence. Prior to this age no gender differences in depression are indicated (Hankin et al., 1998; Rose, 2002). At the same time, increased use of co-rumination as a discussion strategy is thought to emerge in early adolescence as girls are increasingly encouraged to develop a stronger interpersonal orientation than boys (Rose, 2002; Simonson, Mezulis, & Davis, 2011; Smith & Rose, 2011). Given this literature, Stone et al. (2010) noted that one possibility for the absence of a gender difference in their study may have been their younger sample which included children as young as nine. Alternatively, Hankin et al. (2010) noted further research confirming the role of gender differences was needed with current effect sizes for the gender differences reported in the literature small, indicating statistically significant but not clinically significant results. Lastly, it is also possible that gender differences in co-rumination differ across different relationships. As evidence of this, Calmes and Roberts (2008) found gender differences in the consequences of co-ruminating with a friend, but not co-ruminating with a parent, roommate, or romantic partner.

Summary of Gaps in the Literature

It is clear from the review above that researchers have largely focused on exploring co-rumination with a same sex-friend in child and adolescent populations. While more research is needed, results indicate females are more likely to co-ruminate than males. A clear trade-off in regards to the costs and benefits of co-rumination is also highlighted, with co-rumination increasing levels of closeness and satisfaction while at the same time increasing levels of depression and anxiety. This is particularly more so for females.

The absence of research within an adult population raises the question of whether co-rumination is a phenomenon specific to adolescent females, or whether its consequences also generalise to different age groups. It would tentatively appear that the consequences of co-rumination do translate to adult female same-sex friendships (Byrd-Craven et al., 2008; Byrd-Craven et al., 2011; Calmes & Roberts, 2008) and males and females' working relationships (Haggard et al., 2011). In regards to romantic relationships, as noted above, the one researcher (Calmes & Roberts, 2008) who has explored co-rumination in this context found co-rumination was *not* associated with greater levels of depression or anxiety. The absence of a significant consequence of co-ruminating with a romantic partner is puzzling given that the relationship literature has indicated that discussing a problem with one's romantic partner is associated with increased feelings of intimacy, closeness, and satisfaction (Laurenceau, Barrett, & Pietromonaco, 1998). It is also puzzling given the negative emotional and interpersonal consequences of rumination identified both in the literature and in Studies 2, 3, and 4 in this thesis. With only one study, further research is required to better understand the consequences of co-rumination in this context, and to assess how these consequences may differ from the consequences of rumination.

In addition to its narrow focus on the same-sex friendships of adolescent females, three further gaps in the co-rumination literature are observed. Firstly, it is noted that while co-rumination is described as a dyadic process, all but two of the studies described in this chapter have gained information from only one member of a dyad. No studies have gained information from *both* members of a *romantic* dyad. Secondly, it was observed that all but two studies have used a correlational design to explore the consequences of co-rumination. Thirdly, no study has compared co-rumination with an alterative, more

adaptive discussion style. This point is similar to that made in the rumination literature, with experimental designs typically comparing rumination to a distraction condition. To address this, the rumination literature has started comparing ruminative thinking to alternative thinking styles. These have included concrete thinking (focusing on the facts of the situation; Kross, Ayduk, & Mischel, 2005; Watkins & Moulds, 2005a), experiential thinking (focusing on how one felt as opposed to why one felt that way; Watkins, 2004), and reappraisal (Ray et al., 2008).

Study 5

To date, the studies in this thesis have focused on broadening our understanding of rumination by exploring its wider emotional and interpersonal consequences. As noted previously, results have revealed that rumination has consequences not only for the individual who is ruminating, but also for their romantic partner. Investigating the consequences of co-rumination will extend these findings by furthering what is known about the broader consequences of rumination and of the mechanisms that drive these consequences. This is because it will allow me to investigate whether rumination is associated with specific behaviours (in this case engaging in conversations that focus on repetitively rehashing events) as well as specific emotions. It will also increase our understanding of whether the consequences of repetitive thought differ according to whether that thought is shared or not shared.

Taking into account the gaps in the literature that have been highlighted, the current study will use an experimental design to explore the consequences of co-rumination for both members of a romantic couple. Given community samples typically differ from student samples in the stability and length of participants' romantic relationships (Sears, 1986) it

was decided to explore co-rumination in a community sample. This was because it was felt that changes in emotion and interpersonal feelings after co-ruminating would likely be less influenced by additional variables such as greater feelings of anxiety and a desire to present oneself in their best light, that are more likely to occur in the early stages of a new relationship (Margolese et al., 2005).

In order to clarify whether co-rumination is negative because it involves focusing on a negative event, or whether it is negative because of the way in which that event is discussed, the experimental design will compare co-rumination with co-reflection. Previous research has compared rumination and reflection as two alternative forms of introspective thought that have differing consequences for depression (Trapnell & Campbell, 1999; Treynor et al., 2003). In this literature, reflection is defined as a non-judgemental contemplation of events that is solution focused and driven by a curiosity to increase self knowledge so that one can learn and move forward (Nolen-Hoeksema et al., 2008; Treynor et al., 2003; Watkins, Moberly, & Moulds, 2008). Reflection (as compared to rumination) has been found to be associated with lower levels of depression (Takano & Tanno, 2008; Treynor et al., 2003) and negative emotion (Kross et al., 2005), and greater effective problem solving (Takano & Tanno, 2008) and interpersonal skills (skills used to maintain relationships; Takano, Sakamoto, & Tanno, 2011). Reflection has also been found to be associated with a greater openness to experience, which fosters a greater receptiveness to another's point of view (Joireman, 2004). Rumination, in contrast has been found to be associated with less perspective taking (Joireman, 2004). Joireman (2004) noted that this may be due to ruminators perceiving another's needs as a threat to their own. Given this distinction between reflection and rumination, reflecting on an event with one's partner (from now on referred to as co-reflection) would appear to make an

excellent comparison to co-rumination. This because co-reflection would appear to involve a different way of communicating and processing a negative event that may result in the reduction of negative emotion, in addition to the greater closeness that comes from self-disclosure (Rose, 2002). To the best of my knowledge, it will be the first study to make this comparison.

Previous research has indicated that in addition to its repetitive nature, co-rumination may be more negative when focused on a negative event (Star & Davila, 2009). The type of event thought about also appears important for rumination, with the findings of Study 2 revealing that when asked to ruminate, participants who ruminated on a negative event reported a lower mood than those ruminating on a typical event. In order to further clarify what factors increase the negative consequences of co-rumination, this study will ask participants to discuss both a positive and negative relationship event.

Hypotheses

Three hypotheses were proposed: 1) Individuals who ruminate will be more likely to also co-ruminate with their romantic partners, 2) Co-ruminating with one's romantic partner on a negative problem will result in greater relationship closeness but also greater negative emotion, 3) Co-rumination (compared to co-reflection) will be associated with greater negative emotion and relationship satisfaction.

Method

Participants

Participants were the same 53 heterosexual couples, recruited from the wider Christchurch community, who participated in Study 4. All participants were aged 18 and

over, and in a relationship of two months or longer. The average age of both females and males was 29 years. The average length of couples' relationships was 7 years 1 month. For a fuller description of participants, please refer to the method section and Table 4.1 in Chapter 4.

Design

This study had two phases. First, participants completed the online questionnaire that was part of Study 4. The purpose of this was to assess general levels of rumination, co-rumination, depressive symptomatology, and interpersonal feelings such as relationship satisfaction. These variables were assessed one week ahead of time so that the process of gathering this information did not influence responses for the second part of this study.

The second phase of the study involved a 2 (gender: male vs female partner), x 2 (event type: positive relationship event, negative relationship event) x 2 (discussion style: co-rumination, co-reflection) within subjects experimental design. All couples engaged in four discussions. For each discussion participants were asked to 1) co-ruminate on a negative event, 2) co-ruminate on a positive event, 3) co-reflect on a negative event, and 4) co-reflect on a positive event. Each discussion lasted five minutes. The order of discussions was randomly assigned. The event type manipulation (positive/negative) was based on the work of Fernando (2006) and Watkins (2004). The discussion manipulation was based on the work of Byrd Craven et al. (2008; 2011) and the rumination literature which has compared rumination and reflection (Watkins, 2004; Watkins et al., 2008; Watkins & Moulds, 2005a). For a visual depiction of this design please see Appendix Q.

Five dependent variables were measured: current emotion (positive/negative), relationship closeness, feelings of frustration with partner, perceived levels of support given, and perceived levels of support received. All variables were measured on arrival to the research office, and again after each discussion was completed.

On completion of the study, all participants were asked to co-ruminate on a positive relationship event for three minutes. This was not part of the experimental design and not measured. Instead it followed the example of previous researchers such as Holland and Roisman (2010) who included this task to increase the likelihood that all participants left the study feeling positive about their relationship.

Measures

Phase 1. Online questionnaire. The online questionnaire consisted of demographic questions that asked participants to report their age, gender, ethnicity and current relationship status. It also included measures of rumination, depressive symptoms, and interpersonal feelings. Please see the measures section of Chapter 4 for a fuller description. In addition, to the questionnaires noted in Chapter 4, participants also completed measures regarding co-rumination and self-disclosure.

Co-rumination. Co-rumination was assessed using Waller and Rose's (2009) 16 item Co-Rumination Questionnaire-Revised (CQ-R). The CQ-R is a revised version of Rose's (2002) 27 item Co-Rumination Questionnaire (CQ). The CQ (Rose, 2002) examined the extent to which children and adolescents co-ruminated with a same-sex friend by assessing nine specific content areas. These areas were: 1) frequency of problem discussion 2) tendency to discuss problems instead of engaging in other activities 3)

encouraging a friend to discuss their problem 4) encouragement by a friend to discuss problem 5) tendency to discuss the same problems repeatedly 6) speculating about the cause of a problem 7) speculating about the consequence of a problem 8) speculating about parts of a problem that are not understood and 9) tendency to focus on negative feelings. The CQ-R differs from the CQ in that it separates out whose problem was co-ruminated on. For example, while the CQ asks ‘‘When we talk about a problem that one of us has”, the CQ-R asks both “When we talk about a problem I have” and “When we talk about a problem my friend has”. As this new approach would have doubled the length of the CQ, Waller and Rose (2009) shortened the original measure by having one item instead of three assess each of the nine content areas.

Responses on the CQ-R are given on a 5 point likert scale ranging from 1 (*not true at all*) to 5 (*really true*). Scores are the mean rating of responses indicated for a problem belonging to the child/adolescent, and problems belonging to a friend. Possible scores range from 1 to 5, with higher scores indicating higher levels of co-rumination. A total score is also tallied by calculating the mean rating of items across all responses. Again, higher scores indicate higher levels of co-rumination. For the current study wording on the CQ-R was changed to reflect problems belonging to “an individual” and their “romantic partner”. The CQ-R has been shown to have good reliability with Waller and Rose (2009) reporting cronbach alphas ranging from .91 to .94 for adolescents and .92 to .94 for adults.

Self-disclosure. A revised version of Rose’s (2002) Self-disclosure Questionnaire (SDQ) was used to assess self-disclosure in this study. Rose’s (2002) self-disclosure questionnaire was a five item measure based on the work of Parker and Asher (1993).

These five items assessed an individual's self-disclosure to a friend. The revised version of this questionnaire (SDQ-R; Waller & Rose, 2009) consists of 10 items as it assesses not only an individual's disclosure to a friend, but also the friend's disclosure to the individual. Each item is rated on a 5 point likert scale. Responses range from 1 (*not really true*) to 5 (*really true*). Mean ratings across items for both the individual's problem and the friend's problem are then tallied creating two scores. Waller and Rose (2009) report good reliability for the SDQ-R with cronbach alphas of .92 for adolescents scores on both subscales, and .87 for adults. Cronbach alphas for the current study were .89 for males and .90 for females.

Phase 2: Questionnaires. As in Study 2 the BMIS was used as a brief measure of current emotional state and the RES as a measure of current feelings towards a romantic partner. In addition to the BMIS and RES, study participants completed several visual analogue scales (see appendix S) and a discussion generation questionnaire (see appendix R).

Visual analogue scales. On arrival to the research office and after each discussion participants completed five visual analogue scales. These scales assessed participants' current mood (0 = *I feel very negative* to 100 = *I feel very positive*), feelings of closeness towards their partner (0 = *not close at all* to 100 = *extremely close*), feelings of frustration towards their partner (0 = *not frustrated at all* to 100 = *very frustrated*), and perceived levels of support given and received (0 = *not supported at all* to 100 = *very supported*).

Discussion generation questionnaire. Following the example of Rose (2005) and Byrd-Craven et al. (2008; 2011) a discussion generation questionnaire was used to decide

the two negative events and two positive events participants would be asked to discuss. The questionnaire asked participants to generate three negative events and three positive events that have occurred in the past two weeks that they would be comfortable talking about with their partner. For each event identified, participants rated the importance of the event (0 = *not important at all* to 7 = *very important*), the distressed caused by the event (0 = *not distressing* at all to 7 = *very distressing*), and the time spent thinking about the event (0 = *not thought about it at all* to 7 = *thought about it a great deal*).

Apparatus

Discussions took place in a furnished soundproof laboratory with two wall mounted cameras. Microphones were placed on a coffee table positioned in front of participants. An adjacent laboratory housed all the recording equipment (two connected dvd recorders and two colour television monitors).

Procedure

One week after completing the online questionnaire, each couple came into the research office. On arrival, each member of the couple individually completed four short pencil and paper self-report questionnaires: the BMIS, RES, five VAS scales, and the discussion generation questionnaire. On completion of the discussion generation questionnaire participants were encouraged to select two negative and two positive events that they felt comfortable discussing on camera.

After the topics for discussion were identified, each was randomly assigned a discussion style such that different positive and negative events were ruminated on and reflected on. Couples were left to discuss each event alone, with the researcher sitting in an adjacent

room. Couples sat facing each other in two chairs placed at right angles so that the wall mounted camera could obtain a clear picture of both participants. To signal that it was time to start a discussion, the researcher knocked twice on the laboratory door. The researched knocked twice again to when it was time to stop the conversation.

To begin, couples engaged in a five minute warm up conversation of discussing a negative event as they normally would. The aim of this conversation was to help couples feel more comfortable in their surroundings. On completion of this discussion each individual completed a sheet containing the five VAS scales previously described. Following this discussion, participants were instructed to discuss one of the relationship events previously nominated for discussion. The topic and instructions for how this topic was to be discussed (co-rumination/co-reflection) were on a piece of card given to each couple.

When asked to *co-ruminate* couples received the following instructions:

For this discussion I would like you both to talk about the given event by **repeatedly talking about what happened**

To help you do this:

1) Speculate together on the **causes** and **consequences** of this event (think about why it happened, why did you react as you did, what does this say about you, what may happen as a result)

2) Focus on and **discuss in depth** the **emotions** you felt **and thoughts** you had

3) Encourage each other to continue talking about the **causes and consequences** of this event. **Stay focused on this event**, making sure you **talk over every aspect quite a few times**

You have five minutes to do this

When asked to *co-reflect* participants received the following instructions:

For this discussion I would like you both to talk about the given event by **taking a step back and reflecting on what happened**

To help you do this:

1) Contemplate together on the **experience** of this event in order **to increase your understanding** of what happened (think about what you did, what else was happening, what was the day like)

2) Reflect on and **share** your **thoughts and feelings**, aiming to **gain greater insight** into how you each felt

3) Encourage each other to continue reflecting about the **insights and knowledge you have gained**. **Stay focused on the bigger picture**, making sure you **contemplate possible solutions**

You have five minutes to do this

Once the discussion has finished, and participants' five VAS ratings had been completed, they were given a second topic for discussion and instructions on how this topic was to be discussed. This process continued until all four discussions had been completed. Participants were encouraged to take a break if needed between discussions.

For their last discussion, which focused on discussing a positive event, participants received the following instructions:

For this last discussion I would like you to each talk about the things you enjoy doing together and look forward to.

You have three minutes to do this.

Throughout the study participants were encouraged to take a break between conversations as needed. No couples took up this offer. All couples completed the study, with no couples choosing to leave early. At the end of the study participants were fully debriefed and any questions they had were answered. Please see Appendix T for the debriefing sheet participants received.

Coding. To ensure couples engaged in each discussion in the manner intended all discussions were coded for co-rumination and co-reflection. Co-rumination was coded according to the global coding guidelines of Rose et al. (2005). This involved rating each conversation for its degree of 1) mutual encouragement of problem talk, 2) rehashing of problems, 3) speculation about the causes and consequences of problems, and 4) dwelling on negative affect. Guidelines for rating co-reflection were based on the format of Rose et al.' s (2005) co-rumination coding and on the definitions of co-reflection provided by Treynor et al. (2003) and Watkins and Baracaia (2002). Each conversation was coded for 1) a neutral, non evaluative tone, 2) the contemplation of possible solutions, 3) a focus on sharing insights and knowledge, and 3) a focused (non repetitive) sharing of feelings. Total co-rumination scores and co-reflection scores were also rated based on the coders overall impression of each conversation. All ratings were given on a five point likert scale anchored at 1(*Not at all/very little*) to 5 (*Very much*). One independent coder blind to the nature and conditions of the study rated each conversation. A second blind coder rated ten percent of the conversations. Across conversations inter-rater reliability was high (kappa = 0.74, α = .91). Overall, it was noted that couples largely engaged in conversations as requested, though these differences did not appear to be large. Specifically, average co-rumination scores across all ratings when asked to co-ruminate were 4.1/5, indicating "*a lot*" of co-rumination. Average co-reflection scores when asked to co-ruminate were

2.88/5, indicating "*a little*" to "*a moderate amount*" of co-reflection. Similar results were found when couples were asked to co-reflect: average co-rumination scores were 2.24/5 (indicating "*a little*" co-rumination), while average co-reflection scores were 3.48/3 (indicating "*a moderate amount*" to "*a lot*" of co-reflection). Please see Appendix U for the coding manual and Appendix V for more detail on the specific coding scores obtained for each conversation.

Statistical Analyses

All data were entered into a Microsoft ACCESS database (2007). Ten percent of responses were randomly selected and data entry checked. Data were transferred into SPSS (IBM, 2010) for statistical analyses. None of the data fit a normal distribution. Negative emotion (BMIS) was transformed using a log transformation. Emotion about one's relationship (RES) was unable to be normed and therefore left in its original form, as were participants' responses on each of the VAS scales. Transformed variables, where possible are reported.

Data were analysed with a 2 (Gender: male vs female partner) x 2 (Discussion style: co-rumination, co-reflection) x 2 (Event type: positive relationship event, negative relationship event) repeated measures ANOVA. As noted in Chapter 4, dyadic data by their nature may violate the ANOVA assumption that observations must be independent, if data from individuals are treated as separate observations (Kenny et al., 2006). To account for this, the unit of analysis in the present study was the couple rather than the individual (i.e. there was one line of data per couple), and gender (male vs female) was included as a within-subjects variable. All couples participated in all discussions.

Discussion style and event type were also within-subject factors. Thus all three factors of the ANOVA were within-subjects.

Results

Sample Characteristics

Table 4.2 in Chapter 4 reported the descriptive statistics and reliability coefficients for each of the measured mood and interpersonal variables obtained when completed as part of Study 4. Table 5.1 reports the descriptive statistics and reliability coefficients for co-rumination and self-disclosure which were specific to Study 5. As can be seen in Table 5.1, males and females did not differ in their reporting of co-rumination and self-disclosure. This is in line with the study variables reported in Table 4.2, with no gender differences observed in ratings of rumination, nor the emotional or interpersonal variables assessed.

Table 5.1

Co-rumination and Self-disclosure, by Gender (Study 5)

	Males			Females				
Measure	*α*	*M*	*(SD)*	*α*	*M*	*(SD)*	*t*	*p*
Co-rumination	.91	2.87	(.75)	.92	2.79	(.77)	.55	.58
Self-disclosure	.89	38.27	(6.42)	.90	39.96	(7.18)	-1.27	.21

Note. (*df*) = 104 in all cases.

Correlations among variables are reported in Table 5.2. Table 5.2 indicates that co-rumination and self-disclosure in females were positively correlated with co-rumination and self-disclosure in males. Co-rumination was associated with greater rumination in

males but not females. In regards to its emotional and interpersonal consequences, greater co-rumination both within in the individual and within their partner was associated with greater relationship depth for males and females. Co-rumination within the individual and their partner was also associated with greater relationship satisfaction for males, but not for females. Self-disclosure, on the other hand, was associated with greater relationship satisfaction support and depth, and lower conflict for both males and females. For females, self-disclosure was also associated with lower negative emotions felt when thinking about a relationship. Lastly, it is noted that self-disclosure in males was associated with lower negative emotion in females.

Table 5.2

Correlations Among Co-rumination, Rumination, Depressive Symptoms, and Interpersonal Variables (Study 5)

	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]
Female Co-rumination [1]	.33*	.37**	.22	.11	.27	.07	-.05	.01	.07	.22	.37**	.25	.14	.04	.00	.23	.18	.39**	.28*
Male Co-Rumination [2]		.25	.41*	.10	.38**	.01	-.09	.00	.25	.33*	.39**	-.19	-.09	-.11	.03	-.13	.19	.35*	.24*
Female Self-disclosure [3]			.61**	.11	.10	-.16	-.13	-.05	-.17	.67**	.50**	-.29*	-.17	-.38**	-.38**	.69**	.37**	.49**	.24
Male Self-disclosure [4]				-.04	-.09	-.05	-.25	-.28*	-.23	.54**	.70**	-.36**	-.32	-.48**	-.49**	.52**	.52**	.52**	.54*
Female Rumination [5]					.01	.43**	-.11	.19	-.05	.26	.26	.03	-.08	.08	-.02	.08	-.00	.09	-.10
Male Rumination [6]						-.06	.53**	.03	.33*	-.08	-.18	.19	.33*	.19	.31*	.12	.19	-.04	.17
Female Depressive symptoms [7]							.09	.32*	.08	-.16	.05	.04	.06	.17	-.03	.38*	-.02	.01	.09
Male Depressive symptoms [8]								-.11	.43**	-.18	-.37**	.21	.40**	.17	.29*	.16	.38**	-.18	.02
Female Negative emotion [9]									.36**	-.05	.07	.35*	.30*	.32*	.19	.29*	.01	.11	.02
Male Negative emotion [10]										-.02	-.12	.31*	.61**	.13	.14	.06	.13	-.14	-.06
Female Relationship satisfaction [11]											.67**	-.38**	-.20	-.41**	-.29*	-.64**	-.36**	.66**	.28*
Male Relationship satisfaction [12]												-.24	-.26	-.34*	-.46**	-.38**	-.53*	.61**	.40*
Female Negative emotions in relationship [13]													.55**	.49**	.32*	.30*	.24	-.22	-.13
Male Negative emotions in relationship [14]														.27	.21	.11	.12	-.18	.07
Female Conflict [15]															.55	.58**	.33*	-.24	-.14
Male Conflict [16]																.35*	.60**	-.12	-.22
Female Support [17]																	.44**	-.47**	-.24
Male Support [18]																		-.42**	-.54*
Female Depth [19]																			.57*
Male Depth [20]																			

Note. ** = $p < 0.01$, * = $p < 0.05$.

Emotional Consequences of Co-ruminating on a Romantic Relationship Event

It was hypothesised that co-ruminating on a negative relationship event would result in greater negative emotion than co-reflecting.

Current emotion. Mean ratings of emotion for each discussion are presented in Table 5.3. Lower scores indicate greater negative emotion. A main effect of event type was identified with couples experiencing significantly lower emotion after discussing a negative event, (F (1, 52) = 88.93, $p < .01$). No main effect of discussion style was identified, indicating co-rumination and co-reflection resulted in similar experiences of emotion, (F (1, 52) = .97, $p = .33$). No gender differences were identified, (F (1, 52) = .68, $p = .41$). Contrary to expectations, no interaction between event type and discussion style was noted, (F (1, 52) = .37, $p = .55$). Post hoc analysis indicated that when relationship length was added as a covariate, results remained unchanged. This said, a marginally significant interaction between discussion style, event type and relationship length, was observed, (F (1, 51) = 3.50, $p = .06$).

Table 5.3

Mean level of Current Emotion rated after Co-ruminating and Co-reflecting on both Positive and Negative Relationship Events

		Co-Rumination		Co-Reflection	
Gender	Type of Event	*M*	*(SD)*	*M*	*(SD)*
Female	Negative Relationship Event	56.40	(26.82)	59.25	(24.17)
	Positive Relationship Event	83.77	(15.47)	83.96	(13.64)
Male	Negative Relationship Event	62.77	(26.36)	64.62	(24.65)
	Positive Relationship Event	81.06	(18.73)	82.34	(15.32)

Interpersonal Consequences of Co-ruminating on a Romantic Relationship Event

It was hypothesised that co-ruminating on a negative relationship event would result in greater positive interpersonal consequences than co-reflecting. Five interpersonal variables were assessed: closeness, frustration, support received, support given, and satisfaction with the outcome of the discussion.

Relationship closeness. Table 5.4 reports the mean level of relationship closeness reported across all four discussion conditions. Higher scores reflect greater levels of relationship closeness. Results of the ANOVA revealed a main effect of event type (F (1, 52) = 39.27, $p < .01$). No main effect of discussion style (F (1, 52) = .01, $p = .91$), gender (F (1, 52) = 2.10, $p = .15$), nor interaction between event type and discussion style (F (1, 52) = 2.05, $p = .16$) were identified. As can be seen in Table 5.4, results suggest couples experienced greater relationship closeness when focusing on a positive event, as compared to a negative one. Contrary to the hypothesis, co-ruminating versus co-reflecting on a negative relationship event was not found to result in significantly lower levels of closeness for males nor females. Post hoc analyses revealed a significant interaction between discussion style and event type when relationship length was added to the analyses as a covariate (F (1, 51) = 4.05, $p = .05$). All other results remained unchanged. This interaction is graphed in Figure 5.1. As can been seen, when relationship length is taken into account, co-ruminating on a negative event is associated with greater closeness than co-reflecting, while co-reflecting on a positive event is associated with greater closeness than co-ruminating.

Table 5.4

Mean level of Relationship Closeness rated after Co-ruminating and Co-reflecting on Positive and Negative Relationship Events

		Co-Rumination		Co-Reflection	
Gender	Type of Event	*M*	*(SD)*	*M*	*(SD)*
Female	Negative Relationship Event	72.96	(21.78)	69.34	(21.66)
	Positive Relationship Event	80.96	(19.25)	83.06	(15.03)
Male	Negative Relationship Event	74.49	(24.18)	74.53	(23.09)
	Positive Relationship Event	83.28	(17.81)	84.25	(15.04)

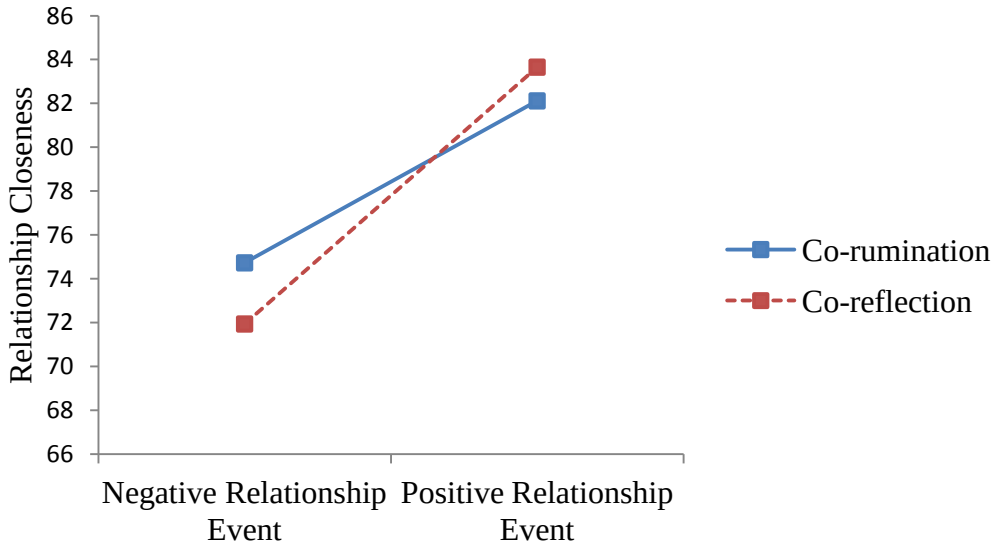


Figure 5.1. Effect of co-ruminating and co-reflecting on relationship closeness

Frustration. Mean levels of frustration following each discussion are displayed in Table 5.5. Higher scores indicate greater frustration. As can be seen in Table 5.5, frustration was greater when talking about a negative versus positive event, (F (1, 52) = 46.07, $p < .01$). Furthermore, females were found to report greater frustration than males,

(F (1, 52) = 5.06, p = .03). Contrary to expectations, no main effect of discussion style (F (1, 52) = .14, p = .71), nor interaction between event type and discussion style (F (1, 52) = .03 p = .86) were identified. Post hoc analyses indicated that when relationship length was added as a covariate a main effect of event type remained (F (1, 52) = 41.80, p < .01) but the main effect of gender did not (F (1, 52) = 2.86, p = .10).

Table 5.5

Mean level of Frustration rated after Co-ruminating and Co-reflecting on Positive and Negative Relationship Events

		Co-Rumination		Co-Reflection	
Gender	Type of Event	*M*	*(SD)*	*M*	*(SD)*
Female	Negative Relationship Event	28.96	(30.97)	30.38	(28.48)
	Positive Relationship Event	12.26	(19.87)	12.83	(19.05)
Male	Negative Relationship Event	23.19	(27.44)	22.45	(27.45)
	Positive Relationship Event	10.00	(19.90)	11.51	(18.85)

Support received. Table 5.6 reports the mean perception of support received by males and females across all discussion conditions. Higher scores reflect greater levels of perceived support. Following the pattern established above, Table 5.6 indicates that focusing on a positive (versus negative) event was associated with receiving significantly greater levels of support, (F (1, 52) = 50.09, p < .01). Co-ruminating and co-reflecting were not associated with significantly different levels of support received (F (1, 52) = .02, p = .90), and males and females did not differ in their reporting of received support (F (1, 52) = 1.81, p = .18). Co-ruminating on a negative event was not found to result in lower levels of support received than co-reflecting, with the interaction between event type and

discussion style non-significant (F (1, 52) = 1.61, p = .21). Post hoc analyses suggested a trend in the data when relationship length was added as a covariate, with the interaction between discussion style and event type marginal (F (1, 52) = 3.74, p = .06).

Table 5.6

Mean level of Perceived Support Received rated after Co-ruminating and Co-reflecting on Positive and Negative Relationship Events

		Co-Rumination		Co-Reflection	
Gender	Type of Event	*M*	*(SD)*	*M*	*(SD)*
Female	Negative Relationship Event	70.26	(24.80)	66.88	(23.17)
	Positive Relationship Event	79.43	(19.45)	81.98	(16.71)
Male	Negative Relationship Event	71.26	(26.03)	71.51	(25.37)
	Positive Relationship Event	82.21	(18.43)	83.60	(15.57)

Support given. Mean ratings of support given to one's romantic partner are displayed in Table 5.7. Higher scores indicate greater support given. A main effect of event type was found, with greater support given when focusing on a positive versus negative events, (F (1, 52) = 58.86, p < .01). No main effect of discussion style (F (1, 52) = .00, p = .95) or gender (F (1, 52) = .04, p = .85) was noted. An interaction between discussion style and gender, however, was indicated, with females reporting that they gave greater support to their partner when co-ruminating, while males reported that they gave greater support while co-reflecting (F (1, 52) = 8.66, p = .01). No interaction between event type and discussion style was indicated, (F (1, 52) = .09, p = .77). No change in results was observed when post hoc analyses were run with relationship length as a covariate.

Table 5.7

Mean level of Support Given rated after Co-ruminating and Co-reflecting on Positive and Negative Relationship Events

		Co-Rumination		Co-Reflection	
Gender	Type of Event	*M*	*(SD)*	*M*	*(SD)*
Female	Negative Relationship Event	67.34	(22.97)	64.69	(23.54)
	Positive Relationship Event	80.94	(19.04)	78.85	(18.14)
Male	Negative Relationship Event	66.13	(23.99)	67.74	(22.84)
	Positive Relationship Event	78.30	(16.84)	81.04	(13.98)

Satisfaction with the outcome of the conversation. The mean level of satisfaction reported following each discussion is presented in Table 5.8. Higher scores reflect greater satisfaction with the outcome of the conversation. As can be seen in Table 5.8 participants were more satisfied with the outcomes of their discussions when focusing on a positive versus negative event, (F (1, 52) = 54.62, $p < .01$). No main effect of discussion style (F (1, 52) = 1.38, $p = .25$) or gender (F (1, 52) = .71, $p = .40$), and no interaction between event type and discussion style were identified, (F (1, 52) = 1.58, $p = .21$). Results remained unchanged when post hoc analysis considering relationship length as a covariate was conducted.

Table 5.8

Mean level of Satisfaction with the Outcome of the Conversation rated after Co-ruminating and Co-reflecting on Positive and Negative Relationship Events

		Co-Rumination		Co-Reflection	
Gender	Type of Event	*M*	*(SD)*	*M*	*(SD)*
Female	Negative Relationship Event	64.62	(27.84)	63.21	(25.10)
	Positive Relationship Event	80.58	(20.42)	84.91	(15.52)
Male	Negative Relationship Event	67.74	(27.27)	68.77	(24.90)
	Positive Relationship Event	78.92	(21.62)	84.23	(15.53)

Perception of conversational tone. Mean ratings of the tone of each conversation are displayed in Table 5.9. Higher scores indicated greater feelings of a positive/supportive tone as contrasted to a negative/critical tone. As can be seen in Table 5.9, results revealed a main effect of event type (F (1, 52) = 93.81, $p < .01$) and discussion type (F (1, 52) = 4.35, $p = .04$). This suggested that focusing on positive event was associated with a greater positive tone than focusing on a negative event. Similarly, co-reflecting was associated with a greater positive conversation tone as compared to co-ruminating. The interaction between event type and discussion style was marginal, (F (1, 52) = 3.74, $p = .06$). As can be seen in Table 5.9, this suggests a trend towards greater negative tone of conversation when co-ruminating versus co-reflecting on a negative relationship event. No main effect of gender was identified (F (1, 52) = .98, $p = .33$). Post hoc analyses suggested relationship length was an important factor when considering these results, with a main effect of event type the only result that remained significant when this variable was taken into account (F (1, 52) = 76.81, $p < .01$).

Table 5.9

Mean level of Perceived Conversation Tone rated after Co-ruminating and Co-reflecting on Positive and Negative Relationship Events

		Co-Rumination		Co-Reflection	
Gender	Type of Event	*M*	*(SD)*	*M*	*(SD)*
Female	Negative Relationship Event	55.88	(21.85)	60.57	(26.71)
	Positive Relationship Event	86.47	(12.83)	85.70	(14.71)
Male	Negative Relationship Event	58.43	(25.60)	65.88	(25.88)
	Positive Relationship Event	84.86	(17.64)	86.20	(14.34)

Summary and Discussion

In continuing to further what is known about the contributors to and consequences of rumination, the present study addressed three questions: Do individuals who ruminate, also co-ruminate with their romantic partner? How do the emotional and interpersonal consequences of rumination compare to the emotional and interpersonal consequences of co-rumination? And, how does co-ruminating with a romantic partner compare to the process of co-reflecting with a romantic partner?

The Relationship between Rumination and Co-rumination

Given their similar repetitive natures, it was proposed that individuals who regulated their emotion by ruminating would be more likely to also engage in the emotion regulation strategy of co-rumination. Supporting this hypothesis, greater rumination in males was associated with greater co-rumination. The same, however, was not true for females. Research shows males typically report lower levels of rumination (Nolen-Hoeksema & Jackson, 2001) and co-rumination (Rose, 2002) than females. In the current study, no

gender differences in self-reported rumination or co-rumination were found, suggesting that males' engagement in these two strategies may be greater than that reported amongst males in other studies. Given this, it may be that as males are less likely to use either of these strategies, those males who choose to engage in one strategy (either ruminate or co-ruminate), may in turn, be more open to also engaging in the other to help regulate their emotion. This said, it must be acknowledged that the one other study in the literature to obtain measures of rumination and co-rumination with a romantic partner (Calmes & Roberts, 2008) did not find rumination to be associated with co-rumination. In addition, like the current study, Calmes and Roberts (2008) also reported no gender difference in the frequency of co-rumination with a romantic partner in their sample. Given these results, further research exploring the strength of the association between rumination and co-rumination is needed.

Emotional Consequences of Co-rumination

Contrary to expectations, correlational analyses indicated self-reported co-rumination was not associated with greater levels of depressive symptoms or negative emotion. In addition, co-ruminating with a romantic partner on a negative event did not result in more negative emotion than co-reflecting. This finding is in contrast to the literature which suggests rumination results in greater negative emotion while reflection is associated with less (Kross et al., 2005; Takano & Tanno, 2008; Treynor et al., 2003). It is also in contrast to the co-rumination literature which has found co-rumination results in greater depressive symptoms across adolescent (Rose, 2002) and adult (Davila et al., 2012) same-sex friendships, and adult working relationships (Haggard et al., 2011). It is, however, in line with the findings of Calmes and Roberts (2008) who found self-reported co-rumination

with a romantic partner was not associated with depression or anxiety in their sample of male and female university students.

Several possibilities for the absence of a negative impact of co-rumination on emotion are proposed. Firstly, it is possible that differences are due to the different contexts in which co-rumination occurs, with co-rumination with a romantic partner distinct from co-rumination with a friend. Supporting this suggestion, Calmes and Roberts (2008) and Starr and Davila (2009) have suggested co-rumination with a friend may cover different topics that are more distressing or difficult to solve.

Secondly, it is possible that results are due to differences in the relationship length of couples in the current study as compared to the relationship length of the adolescent samples that predominate the literature. Supporting this suggestion, when relationship length was controlled, a trend towards co-rumination resulting in greater negative emotion when thinking about a negative event was identified. As correlations between relationship length and depression were not significant the direction of this relationship remains unclear. However, given Margolese et al. (2005) suggested adolescents were more likely to ruminate on their romantic relationships (as compared to friendships or relationships with parents) due to their inexperience and insecurities in this area, it is possible that co-rumination in relationships of lesser length will be more susceptible to negative consequences. This is because the greater instability and uncertainty that is more prevalent in the early stages of a relationship (Moore, McCabe, & Brink, 2001) may mean discussing a negative event with a partner is perceived as more threatening as individuals want to present themselves in their best possible light. Supporting this, Higgins (1987)

reported that an individual revealed more of their 'true self' to their partner as trust and intimacy in the relationship developed.

Thirdly, it is possible that the absence of a negative impact of co-rumination on emotion was due to the benefits of self-disclosure overriding the negative consequences of a repetitive negative focus. The emotional processing literature suggests that when an emotion is expressed it reduces the source of distress by increasing insight (Kennedy-Moore & Watson, 2001). In regards to the process of co-rumination, this suggests that the process of verbalising thoughts and feelings results in one coming to understand one's experience in a new way by structuring and organising thoughts differently. Furthermore, it is likely the feedback one receives in discussing one's problems also contributes to one structuring and organising one's thoughts differently.

Lastly, as has been noted previously in regards to the transmission of the consequences of rumination between partners, another possibility is that the effects of co-rumination may depend on accumulation; perhaps negative consequences build up over several conversations and cannot be assessed in a single encounter. Future research is needed to explore this possibility by looking at the consequences of co-rumination over time.

Interpersonal Consequences of Co-rumination

As expected, correlational analysis indicated self-reported co-rumination was associated with greater relationship depth for males and females, and greater relationship satisfaction for males. These results are in line with those of Calmes and Roberts (2008) who found co-rumination with a relationship partner was significantly associated with relationship satisfaction (r = .50**). Contrary to the hypothesis, however, experimental results

indicated co-ruminating on a negative event did not result in greater positive interpersonal consequences than co-reflecting. As noted previously in regards to the absence of emotional consequences, it is possible the absence of interpersonal consequences is reflective of the benefit of self-disclosure and of verbally expressing one's emotions. In this light, expressing a thought or feeling alone, may be more important than the manner in which thoughts and feelings are verbalised. Alternatively, it is also possible that these results again are reflective of the consequences of co-rumination being cumulative. Supporting this proposal, a trend towards co-ruminative discussions (as compared to co-reflective discussions) being perceived as having a more negative tone was observed. This finding is likely reflective of the core differences between co-rumination and co-reflection, with co-ruminative discussion focused on dwelling on emotion and evaluating events. Co-reflection, in contrast, is a non-judgmental discussion of events (Treynor et al., 2003). In regards to the possible implication for the consequences of co-rumination, research has found continued negative discussions over time predict depression (Stafford, McMunn, Zaninotto, & Nazroo, 2011) and poorer relationship quality (Stanley, Markman, & Whitton, 2002). Interestingly, this result did not remain significant when controlling for relationship length, suggesting that perception of a conversations tone was influenced by relationship length.

Lastly, it is again possible results may be due to differences in the characteristics of the current sample as compared to adolescent samples. Supporting this, when controlling for relationship length, co-ruminating on a negative event was associated with greater relationship closeness than co-reflecting. A trend towards co-rumination being associated with greater feelings of support received than co-reflecting was also observed. These findings are consistent with Rose's (2002) theory of co-rumination, which suggest that the

self-disclosure that occurs when discussing a problem, and the continued mutual encouragement to continue self-disclosing, strengthens relationship bonds. Facilitating this process is thought to be the increased understanding and trust that comes from self-disclosure (Buhrmester & Prager, 1995).

One gender difference in the consequences of co-rumination was noted. That was, females reported that they provided more support to their partner while co-ruminating. In contrast, males reported that they gave more support while co-reflecting. This findings is in line with the literature on socialisation theory (Pearlin & Schooler, 1978) that was previously highlighted to explain gender differences in coping styles. That is, females are socialised towards an interpersonal orientation that encourages them to focus on and talk about their emotions and the emotions of others (Pearlin & Schooler, 1978; Simonson et al., 2011). This may, in turn, lend them to viewing co-rumination as more beneficial due to its continued focus on sharing thoughts and emotions. Males, on the other hand, are socialised to engage in more action oriented strategies to manage their emotions such as problem solving (Pearlin & Schooler, 1978; Simonson et al., 2011). This, in turn, may lend them to view co-reflecting as more beneficial, as co-reflecting involved a problem solving component, while, co-rumination did not.

Are Rumination and Co-rumination more Different than Similar?

While Rose (2002) noted rumination was distinct from co-rumination, the fact that co-rumination is viewed as a verbal form of rumination can lead to the assumption that similar emotional consequences may be identified across both variables. In regards to interpersonal consequences, however, differences in consequences would be expected because co-rumination involves self-disclosure which facilitates closeness, while

rumination does not. Supporting this proposal, Studies 2, 3, and 4 have confirmed that rumination was associated with some negative interpersonal consequences, while the current study has indicated that co-rumination was associated with greater relationship closeness. Contrary to this proposal, however, while the previous studies in this thesis have indicated clear negative emotional consequences of rumination, the current study found no negative emotional consequences resulted from co-rumination. It is suggested that this is because the negative cycle of rumination is weakened when rumination is externalised. This is because the process of describing one's feelings to another, changes how those feelings are perceived, and because sharing one's ruminative thoughts opens them up to being influenced by the perspectives of others. In addition, it is also possible that rumination may have a more negative effect on emotion than co-rumination due to differences in the focus of both styles, with rumination, by definition, focused on emotion more specifically, while co-rumination is focused on discussing problems (for both the individual as well as problems of their partner) more generally.

Given the suggestions noted above as to why co-rumination may not negatively affect emotion for adults, it is curious why co-rumination has negative emotional consequences for adolescents. One large factor possibly explaining this difference that has been highlighted in this discussion is the importance of context, with research on co-rumination in adolescents focusing on same-sex relationships while the current study investigated co-rumination in the context of a romantic relationship. As noted previously, it is likely that the content of co-ruminative discussions across these settings are different, which, in turn, likely has implications for any resulting consequences. Supporting this, results from the current study have repeatedly highlighted the importance of the content of discussions, with negative relationship events (as compared to positive relationship events) resulting in

greater levels of negative emotion and frustration, and decreased levels of relationship closeness, support given, support received, and satisfaction with the outcome of the discussion. These results are also in line with the results of Study 2 which highlighted the importance of content for ruminative thinking. Ruminating on a negative relationship event was found to result in greater negative emotion and lower levels of overall mood, relationship satisfaction, and relationship closeness. Furthermore, as noted previously, adult samples are more likely to contain individuals who have been in romantic relationship for longer. This means they may be less vulnerable to the negative effects of discussing a negative event due to their greater shared history and previous experience of such discussions. Given this it may be that adults gain greater emotional benefit from sharing how they are feeling as they are less worried about the consequences of doing so. Supporting this, communicating with partner has been found to foster trust and intimacy, which, in turn, has been found to have positive emotional benefits (Domingue & Mollen, 2009; Laurenceau et al., 1998; Sprecher & Hendrick, 2004).

Are Co-rumination and Co-reflection more Similar than Different?

The present study is the first in the literature to have asked adult couples to co-ruminate and co-reflect together. Contrary to expectations, while there were differences in the effect of co-rumination and co-reflection on relationship closeness and support given, no significant differences were noted in regards to emotion, frustration, support received, conversation tone, or satisfaction with the outcome of the discussion. Overall, these mixed results suggest the consequences of co-rumination and co-reflection are more similar, than they are different.

Several possibilities for these findings arise. Given the literature noted previously in regards to the benefits of self-disclosure and the expressing of emotion, it may be that the act of sharing thoughts and feelings is more important that the manner in which they are shared (co-ruminating versus co-reflecting). In addition, it is also possible that there is a greater overlap between co-rumination and co-reflection than previously thought. In the current study, for example, coding for co-rumination and co-reflection indicated that while participants engaged in each discussion in the manner intended, each discussion contained elements of both discussion styles (no discussion was purely co-rumination and purely co-reflection). While this overlap may reflect a fault in the method of the current study, it is also possible that it is reflective of the process that occurs when emotion is expressed. Clark (1993), for example, noted that in order to convey how one is feeling to another, one needs to step out of one's own perspective so that one can understand what background information is needed and how best to describe one's experience in a manner in which the other person can better understand. This process of stepping outside oneself involves elements characteristic of reflection. Further, Clark (1993) noted that in expressing emotion one often is able to come to a clearer understanding of one's feelings and to make more meaning from the experience. This again involves elements inherent to reflection. Together this suggests that when any emotion is shared elements of reflection may be present.

Implications

The current results increase our understanding of the broader consequences of rumination by suggesting that the process of internally ruminating on one's thoughts does not necessarily lead one to share these thoughts by externally ruminating with their romantic partner.

Implications for our understanding of the mechanisms that contribute to the negative consequences of rumination are also noted. The current study has indicated that while co-rumination is thought of as an externalised form of rumination, the similarities end there, with both processes associated with distinct consequences. Specifically, the contribution of the internalised nature of rumination is highlighted, with the process of verbalising rumination appearing to change the nature of that thought. In addition, the role of self-disclosure is also highlighted; sharing thoughts and feelings with a partner appears to outweigh the negative consequences of repeatedly doing so. As evidence of this, unlike rumination, co-rumination appears to be a positive process that does not increase negative emotion and that fosters greater closeness and perceived support.

A practical implication of the current study, is it could be that chronic ruminators who are unable to distract from their ruminations may benefit from sharing their ruminative thoughts with their partner as doing so opens the thoughts up to being reframed which may, in turn, act as a buffer to the negative consequences of rumination.

The absence of gender differences between rumination and co-rumination in the current study has implications. In contrast to the adolescent samples that predominate the literature, the current results suggest adults may be more similar in their levels of co-rumination. It is possible that this similarity in levels of co-rumination may be reflective of the compromise that occurs when two individuals form a romantic partnership. That is, gender differences in the levels of co-rumination may disappear as couples develop a style of communication that suits both partners. Supporting this proposal, previous research has indicated that relationship partners develop similar values and attitudes (Acitelli, Kenny, & Weiner, 2001), and verbal and social skills (Burleson & Denton, 1992) over time.

Doing so is proposed to be adaptive for relationships as it promotes greater cohesion (Hatfield et al., 1994).

Strengths and Limitations

One of the strengths of the current study was its experimental design and coding of conversations to ensure couples participated in each task in the manner intended. The two other studies (Byrd-Craven et al., 2008; Byrd-Craven et al., 2011) to use an experimental design to investigate co-rumination compared a problem talk and control talk condition in a sample of female same-sex friendships. To my knowledge, the current study is the first to have instructed participants to co-ruminate, and to compare co-rumination with co-reflection. Coding results confirmed that co-rumination can be explored in an artificial setting, with couples co-ruminating together when asked to do so.

Several limitations are present in the current study. As indicated previously, one of the main limitations was that while participants were found to mainly discuss tasks as instructed, overlap was noted with conversation not purely involving co-rumination or co-reflection, but elements of both discussion styles. This may, in turn, be responsible for the absence of significant differences between co-rumination and co-reflection. Attempts were made to limit this at the outset of the study by providing participants with clear bullet pointed instructions on how to engage in each discussion. This said, some overlap was unavoidable with mutual encouragement and self-disclosure, for example, high in all discussions. This was largely due to the nature of the study with participants encouraging each other to keep discussing the events nominated for the full five minute period whether they were asked to or not. Future research would benefit from exploring the issue of how this may be overcome. For example, it may be that one member of each couple is given

extra instruction on each discussion style and asked to ensure that they keep each discussion on track. Alternatively, it could be that couples are prompted through an intercom system to return to the instructions provided if they are observed to go off track.

A second limitation is that the study took place soon after Christchurch's 7.0 earthquake in September 2010. It should therefore be kept in mind that this particular sample may not be representative of other community samples. For example, it is possible that the current sample may have gained greater benefit from engaging in the different discussions as it both acted as a distraction and gave couples time to discuss different relationship events that may have been neglected in their conversation time due to a community focus on discussing earthquake experiences and housing damage.

Additional qualifications to the generalisability of results from the current sample are also noted. Firstly, it is acknowledged that the couples who were willing to participate in a study of this nature about the discussion of relationship events, may be more comfortable in their relationships than couples in the general population. Future research looking at co-rumination among couples having difficulty in their relationships could therefore be important. It is also noted that participants may have been somewhat guarded in their discussions due to the discussions being filmed. To limit this, all couples engaged in a warm up discussion that allowed them to become familiar with the study process and more comfortable in their surroundings before going on to engage in the four experimental discussions. However, it still a possibility that participants may have been more guarded than usual and perhaps more responsive to their partners due to the focused nature of each conversation.

Future Research

Further research replicating this study would be beneficial to determine whether the current findings generalise. In particular, given the importance of the context in which co-rumination occurs has been raised several times throughout this discussion, future research would benefit from exploring co-rumination amongst samples of couples with differing relationship lengths and relationship experiences. This would clarify the contribution of these variables.

Given rumination and co-rumination were correlated for males but not females, future research would benefit from looking further at the possible mechanisms behind this association. For example, research could look at how males and females' perceive the benefits and disadvantages of each strategy. Future research could also look at whether ruminators who co-ruminate are sharing their ruminative thoughts, or whether the content of their co-rumination differs from that of their rumination. For example, it may be that an individual ruminates on their own problems, and that when co-ruminating, rather than sharing their own rumination, they focus on co-ruminating on the problems of their partner. The implication of this is it may explain why rumination is not necessarily associated with co-rumination. That is because co-rumination is not the externalised version of a ruminator's ruminative thoughts. Similarly, in regards to further exploring the differences between co-rumination and co-reflection, future studies could ask couples what they perceive to be the pros and cons of co-rumination in comparison to alternative conversational styles. This would further our understanding of contributors to co-rumination and its consequences.

Lastly, the current study has focused on exploring co-rumination in an artificial environment. Future research could extend these results by looking at co-rumination in a more naturalistic environment.

Summary

The current study extended the rumination and co-rumination literature by investigating the consequences of co-rumination in the context of an adult romantic relationship. Results suggest that individuals who ruminate to regulate their emotions do not necessarily choose to also regulate their emotions by co-ruminating, with males but not females who ruminate also co-ruminating. Results also suggest rumination and co-rumination are two distinct strategies with their own unique consequences. This finding has increased our understanding of rumination as it suggests that it is not just the repetitive nature of rumination that is responsible for its negative consequences, but this repetitive focus combined with the fact that thought is internalised that is crucial. Lastly, results suggest that while co-ruminating on a negative event (as compared to co-reflecting) resulted in greater relationship closeness, the absence of additional differences between these two discussion styles suggests the fact information is shared may be more important in influencing outcomes than how that information is shared.

Chapter 6

General Discussion

This thesis has focused on examining the emotion regulation strategy of rumination. Effective emotion regulation was highlighted in Chapter 1 as an essential skill that has consequences both for the individual and for those close to them. When regulated well, emotion facilitates positive social interaction. When regulated poorly it can interfere with the development and maintenance of relationship bonds (Gross & Thompson, 2007).

As an emotion regulation strategy, rumination has been found to be ineffective. The literature reviewed in Chapter 1 indicates that while individuals' ruminate to improve their mood, the opposite occurs. Historically, research has focused specifically on the association between rumination and depression. Research has also traditionally focused on the consequences of rumination for the individual only. The current thesis has addressed these gaps by investigating the broader emotional and interpersonal consequences of rumination for the individual and for their romantic partner. Possible contributors to these broader consequences of rumination have also been explored. This has resulted in a greater understanding of the mechanisms driving rumination and of the implications that rumination holds for those who decide to use it as an emotion regulation strategy. In this chapter the objectives of this thesis will be highlighted and the results of the five studies that make-up this thesis will be summarised. The general implications from these studies and directions for future research will be discussed.

Thesis Objectives

The principle objective of this thesis was to expand our understanding of rumination by exploring in greater depth its broader emotional and interpersonal consequences. This was done at three levels. First, the consequences of rumination for the individual were explored. Second, the consequences of rumination for romantic partners were assessed. Lastly, the consequences of ruminating together with one's partner were investigated. To my knowledge, no studies to date have looked at the consequences of rumination beyond the consequences for the individual.

A second objective was to explore the variables that may contribute to both the use of rumination as an emotion regulation strategy, and have implications for its consequences. Emotion regulation research states that the way emotions are regulated have consequences both for the individual and for those around them (Gross, 1998). Given this, two specific interpersonal variables that may contribute to rumination were investigated: attachment style and the interpersonal context in which rumination occurs.

Insecure attachment and rumination both play an important role in the regulation of emotion. While previous research has examined the consequences of rumination and attachment on depression, forgiveness, and post-relationship adjustment, no other research, to my knowledge, has examined the contribution of attachment and rumination to negative emotion specifically, and to interpersonal variables such as relationship satisfaction.

Gross's (2007) process model of emotion regulation states that the strategies an individual chooses to regulate emotion depends on their goals for the situation in which they are in.

Reflecting this, research has suggested rumination may be context specific, with individuals choosing to regulate their emotions with this strategy in some situations and not others (Margolese, 2005). Given one of the most significant relationship adults develop is that with their romantic partner, and the role of attachment in developing and maintaining relationship bonds, rumination in the specific context of a romantic relationship was investigated.

Summary of Key Findings

Consequences of Rumination for the Individual who is Ruminating

Emotional consequences. In line with the literature reviewed in Chapter 1, the self-report and experimental findings of this thesis have repeatedly confirmed that at the level of the individual, rumination is associated with greater depressive symptomatology. Self-report data from student and community samples found rumination was associated with greater depressive mood (Study 1), and depressive symptoms (Studies 1, 2, 3, and 4). Experimental data from Study 2 found students who ruminated about a negative relationship event experienced lower mood (sadness) than those who distracted.

This thesis has contributed to the literature by confirming the consequences of rumination are broader than initially hypothesised. Self-report studies with a student sample confirmed rumination was associated with greater levels of shame, guilt, and anger (Study 1) and general feelings of negative emotion (Study 3 and Study 4 with a community sample). These findings increase our understanding of rumination by suggesting that rather than a mechanism specific to depressive feelings, rumination may be better viewed as a cognitive mechanism that has implications for all emotion. One way rumination may have this broader impact is by interacting with an individual's thought content to activate

different emotion nodes in an individual's associative network. Just as it has been shown to do for depressive symptoms, it is proposed that once a node is activated rumination increases the emotion associated with that node by drawing an individual's attention to the thoughts, memories, and schemas attached to it. Supporting this suggestion, thinking about a negative event was found to decrease overall mood while thinking about a typical event was found to increase mood (Study 2).

Contrary to expectations, experimental findings (Study 2) did not find ruminating on a negative relationship event to result in greater negative emotion as compared to distracting. One possible explanation for this finding may again be the role of thought content, with specific thoughts triggering specific emotion nodes as opposed to a general negative emotion node.

Interpersonal consequences. This thesis has extended the literature by indicating rumination has consequences for interpersonal feelings. In line with the handful of existing studies, self-reported rumination was associated with higher levels of conflict, and lower levels of depth and support (Study 2). Students who ruminated experienced greater levels of negative feelings when thinking about their relationship (Study 3). Female students also experienced lower relationship satisfaction (Study 3). For community males (Study 4) rumination was associated with greater conflict and negative feelings when thinking about their relationship. For community females (Study 4), rumination was associated with greater relationship satisfaction. No significant relationships were identified between rumination and relationship depth or perceived support for students or community adults (Studies 3 and 4). Contrary to expectations, ruminating on a negative relationship event did not result in less relationship satisfaction,

relationship closeness, or greater negative feelings about the relationship (Study 2). Overall these findings confirm rumination does impact an individual's interpersonal feelings, but that these consequences are likely accumulative, appearing only after a sustained pattern of ruminative thinking. It is possible that this is because the relationship between rumination and interpersonal feelings is less direct than that for emotion. For example, rumination may indirectly affect interpersonal feelings through the interpersonal characteristics of high ruminators that increase the likelihood of them engaging in negative interactions, or through the detrimental effect of sustained heightened emotion on interpersonal feelings.

Role of attachment. Attachment has been evidenced to play a crucial role in informing the development of different emotion regulation strategies (Siegel, 2001). It was proposed that individuals with an insecure attachment style would be more likely to ruminate. This is because 1) rumination is an internalised strategy (it does not require them to rely on others to regulate their emotion), and 2) the negative cognitive bias inherent in rumination both complements and validates the IWM of insecurely attached individuals by providing a continuous stream of evidence that supports their existing belief system (Saffrey & Ehrenberg, 2007). This relationship was confirmed in Studies 1 and 2, with greater rumination associated with greater insecure attachment.

It was also proposed that insecure attachment would contribute to the negative emotional and interpersonal consequences experienced by ruminators. This is because 1) insecurely attached individuals had a greater depth of negative thoughts and feelings to ruminate on, 2) ruminative thinking made these negative thoughts and feelings more accessible, 3) the increased availability of negative thoughts would heighten an insecurely attached

individual's awareness of their core vulnerabilities, increasing emotion by fuelling further self-doubts in their ability to manage, and 5) the limited range of coping skills held by insecurely attached individuals meant they were less likely engage in an alternative emotion regulation strategy (Mikulincer & Florian, 1998). Mixed results regarding the specific nature of this relationship were found when predicting levels of depressive symptoms and negative emotion from rumination and insecure attachment. On the one hand, self-report data from Study 1 indicated the relationship between rumination and depressive mood, and rumination and anger was significantly strengthened by insecure attachment. On the other hand, rumination and attachment were found to independently contribute to the experience of depressive symptoms, shame and guilt. In regards to the consequences of anxious-ambivalent and avoidant attachment specifically, results indicated avoidant attachment moderated the relationship between rumination and depressed mood and anger. Anxious-ambivalent attachment, on the other hand, moderated the relationship between rumination and guilt. The two studies in the literature (Joireman, 2004; Orth et al., 2006) that have explored rumination and guilt have indicated a weak relationship between these two variables. Study 1 may explain these findings with the finding that insecure attachment may affect the relationship between rumination and guilt.

To the best of my knowledge Study 2 is the first study in the literature to experimentally investigate the relationship between attachment, rumination, emotion and interpersonal consequences. Contrary to expectations, results indicated neither anxious-ambivalence nor avoidant attachment significantly contributed to the experience of negative mood, relationship satisfaction, relationship closeness, or negative feelings about the relationship when ruminating (versus distracting) on a negative event. As noted previously, these findings are not in line with the findings of Margolese et al. (2005) and Saffrey and

Ehrenberg (2007) who found mediating effects of rumination on the relationship between attachment and depression and adjustment respectively. One possibility for this difference in findings is that it may be a specific element of the IWM of an insecurely attached individual that combines with rumination to contribute to its negative effects, rather than insecure attachment more generally. Supporting this, Pearson et al. (2010) found no association between insecure attachment and rumination but they did find rejection sensitivity to be significantly associated with rumination. Alternatively it may be that the association between rumination and insecure attachment is apparent for some emotions more than others. In regards to what this tells us about ruminative thinking, results suggest rumination does not stand alone but is associated with and influenced by an individual's existing IWM. Future research is needed to address specifically what elements of this IWM combine with rumination to create greater negative consequences.

Emotional and Interpersonal Consequences of a High Ruminating Partner

The current thesis increases our understanding of rumination by indicating that choosing to regulate emotion by ruminating not only has consequences for the individual, but it also has consequences for the romantic partner of these individuals. Results for those in the student sample (Study 3) revealed notable gender differences. For males, a ruminating partner was associated with greater levels of negative emotion when thinking about one's relationship and greater conflict. For females, having a high ruminating partner was associated with lower levels of relationship conflict but higher levels of negative emotion. Higher rumination in a partner was not found to affect levels of relationship satisfaction, support or depth for either males nor females. Results for those in the community sample (Study 4) revealed females reported greater relationship satisfaction when their partners were higher ruminators.

Emotional and Interpersonal Consequences of Ruminating Together

The last study in this thesis extended the literature by exploring the process of co-rumination within a community adult sample. Results tell us that individuals who choose to regulate their emotions by ruminating do not necessarily choose to also regulate their emotions by co-ruminating. Further, results suggest that while co-rumination has been described as a verbalised form of rumination, the two processes should be viewed as distinct, with each process having their own unique set of consequences. Rumination, on the one hand, is associated with greater levels of negative emotion and negative interpersonal feelings (Studies 1, 2, 3, 4). Co-rumination, on the other hand, has no effect on emotion and makes one feel better about one's relationship (Study 5). This distinction has implications for our understanding of the mechanisms driving the negative consequences of rumination. Specifically, it appears co-rumination is more than just verbalised rumination, with the content of ruminative thought changing when that thought is externalised. It is possible that this is because expressing a thought opens it up to being reframed and viewed in a different way, or because of the support received when thought is shared (which also opens that thought up to being reframed by someone else). Lastly, mixed results were found when comparing co-rumination and co-reflection, with co-reflection resulting in greater feelings of support received and closeness, but not affecting levels of support given, frustration, or satisfaction with the discussion. This would appear to suggest that the fact a problem is discussed is more important than how it is discussed. Alternatively, it may also be that the cost of co-rumination is only evident after a sustained period of regularly engaging in this discussion style.

Role of context

A strength of the current thesis is its investigation of the specific consequences of rumination within the context of a romantic relationship. Another strength is that is has assessed these consequences across two different samples: students (Studies 1, 2, and 3) and community adults (Studies 4 and 5). What this has shown us is that differences may appear in the consequences of rumination among different samples. The effects of rumination on one's partner, for example, appeared more present in a younger sample (Studies 3 and 4).With results remaining unchanged when controlling for age and relationship length, this suggests the presence of a third variable that may be accounting for these differences. For example, students and community adults may differ in the way rumination perceived, or in how they respond to their ruminating partner which, in turn, influences how they feel. Alternatively it could be that differences in the quality of individuals' relationships contribute to this difference (Margolese et al., 2005; Sears, 1986). Supporting this, Frazier and Esterly (1990) noted attitudes to relationships and what makes good relationship changed with age. A third possibility could be that individuals are engaging in alternative strategies for regulating emotion. Supporting this, research has indicated individuals engage in a wider range of strategies for regulating emotion as they age (Blanchard-Fields, Chen, & Norris, 1997).

Results of Study 5 also highlighted the importance of context with adults in the community sample evidencing no negative emotional consequences to co-rumination. This is in contrast to the literature which has found co-rumination in adolescent same-sex friendships is associated with negative emotional consequences. Results here may again be due to differences in the age of the different samples. Alternatively, it could be that results are due to differences in the quality of these relationships or differences in the

content of these discussions (Calmes & Roberts, 2008). Overall, as with the contribution of attachment, these findings suggest rumination does not stand alone, with the context in which rumination occurs an essential factor to take into account, as the context in which rumination occurs likely influences the content of ruminative thought.

General Implications

Theoretical Implications

The current thesis holds several implications for our understanding of rumination. First it extends Nolen-Hoeksema's (1991) original response style theory, by suggesting that consequences of rumination are broader than originally hypothesised. That is, in addition to its consequences for depressive symptoms, this thesis has shown rumination also has consequences for negative emotion and interpersonal feelings more broadly. In addition, it has shown that these consequences are not specific to the individual, with emotional and interpersonal consequences of rumination for the partners of ruminators also identified. Second, this thesis draws attention to the need for researchers to be clear about how rumination is defined. It is observed that this is not always clear in the literature, with depressive rumination and general rumination often both referred to as rumination. Given the literature in Chapter 1 indicated that the content of ruminative thinking is important in influencing the consequences of rumination, how rumination is defined is crucial. This is because its definition has implications for its content. Depressive rumination, for example, is likely to contain depressive thought content, while general rumination is likely to include a range of emotion depending in the stressor ruminated on. To fully understand the consequences of rumination, rumination needs to be viewed as a general mechanism. This is because in viewing it as a specific mechanism, some of its broader consequences may be missed. The current thesis has done this by exploring general

rumination in the context of a romantic relationship. Third, in regards to the mechanisms driving rumination, this thesis has provided a deeper understanding of the complexity of ruminative thought with the repetitive element of rumination alone not appearing to be solely responsible for its negative consequences. Nolen-Hoeksema (1991) noted that the repetitive nature of rumination distinguished it from other negative thinking styles. What the studies in this thesis have indicated is that in addition to this repetitive focus, the internalised nature of rumination, its negative content, and its sustained pattern over time, are all crucial contributors to the different negative consequences identified. Further, this thesis has broadened our understanding of rumination by highlighting why it is important to consider the contributors of attachment style and the interpersonal context in which rumination occurs. Both factors are crucial as they have implications for the content of rumination, which, in turn, has implications for its consequences.

Clinical Implications

The findings of this thesis hold several implications for clinicians. First, the fact that clients who ruminate are likely experiencing a wide range of negative affect is highlighted. The implication of this is that when assessing clients who identify as having difficulty with rumination it will be important to assess broadly. It will also be important to consider the different contexts in which rumination may occur for the individual and the role that an individual's IWM may play in contributing to the negative content of ruminative thought. This is important as such information will help the clinician understand factors that may be contributing to the maintenance of rumination. For example, an individual may wish to continue ruminating if that rumination validates their core sense of self. Alternatively they may also which to keep ruminating if they believe expressing their thoughts and feelings will be unhelpful as no one will be there to listen.

Second, results suggest targeting rumination in therapy would be beneficial as it would likely address several negative consequences at the one time. Third, results suggest that if ruminative thinking is unable to be challenged, there may be benefits from trying to change the content of rumination.

This thesis is unique in that three studies sought information from both members of couple. This has deepened our understanding of rumination with results indicating rumination is not a process that solely has consequences for the individual who is ruminating. Together with the individual consequences of rumination noted above, these findings may hold practical implications for helping clinicians encourage motivation for change in their clients. Clinicians may do this, for example, by reflecting to their clients that there are many benefits, both for themselves and for others, to stopping or reducing their rumination.

Lastly, implications for the individual are also noted, with it possible that given the frequent ups and downs of daily life, rumination combined with greater levels of negative emotion, relationship dissatisfaction, and an insecure attachment style may create an environment where interacting successfully with others and being happy with those interactions becomes difficult. This may further inhibit an individual's ability to continue to engage in and maintain satisfying relationships. Clinical implications of this may be that for these individual, social skills training may be beneficial to develop more effective ways to interact with those around them.

Future Research

One notable limitation of the studies in this thesis is that they have relied on self-selected samples of participants. That is, participants who have volunteered to participate either alone or with their partner. It is possible that this has meant that the couples who have participated are less likely to be experiencing current difficulties in their relationship. This is because they are comfortable participating in a study about relationships. While this has been a good first step in a literature that has not looked at rumination from the point of view of both partners, future research may benefit from exploring whether the current findings extend to those with relationships that are experiencing difficulties. The literature has indicated that couples in more stable relationships evidence lower levels of stress and engage in more adaptive strategies for managing emotion (Bodenmann & Cina, 2005). Couples who are distressed, on the other hand, have been evidenced to experience greater relationship dissatisfaction, and negative perceptions regarding how they see their partner, and how they think their partner sees them (Halford & Sanders, 1988). Given these differences between couples, it would be expected that rumination would have a greater negative effect in the context of a distressed relationship due to the already heightened emotion, greater negative interactions on which to ruminate, and decreased possibility of engaging in an alternative, more adaptive, emotion regulation strategy.

This thesis has explored the consequences of rumination and co-rumination in a non-clinical population. Given rumination has been found to have a strong relationship with depression, exploring the broader emotional and interpersonal consequences of rumination for the individual and their partner in a clinically depressed population would also appear to be an important next step in further understanding the association between these variables. Similarly, it is noted that the individuals who have participated in this

study largely come from a New Zealand European ethnic background. While the literature reviewed in Chapter 1 indicated that the consequences of rumination have been found to generalise across culture, it is also noted that differences in the perception of the self (interdependent/independent) across culture have been found to influence the consequences of rumination identified. Grossmann and Kross (2010), for example, found individuals from Russia (an interdependent culture) reported less negative outcomes from rumination than individuals from America (an independent culture). This was thought to be due to a greater tendency for individuals from Russia to engage in self-distancing strategies while examining their feelings (Grossmann & Kross, 2010). Given this, it is recommended that future research may benefit from investigating the emotional and interpersonal consequences of rumination and co-rumination in different cultural groups.

All of the studies in this thesis have examined rumination and co-rumination at a single point in time. While this was beneficial in helping to tease out the consequences of and contributors to rumination and co-rumination in a controlled setting, further research would benefit from looking at the emotional and interpersonal consequences of rumination in a more naturalistic setting and over a longer period of time. Such an extension to the current research would further understanding of the complexities of the relationship between rumination and its emotional and interpersonal consequences. Exploring rumination in a natural setting, for example, would be beneficial as it would allow one to look specifically at issues such as whether partners are aware of when their partners are ruminating or not, and what one partner does while the other is ruminating (e.g. do they engage their partner in conversation, reassure them, or walk away). Exploring rumination longitudinally would be beneficial as it would allow for the cumulative effects of rumination to be assessed. Such research would contribute to our

understanding of the broader consequences of rumination, with Study 2 for example, suggesting that rumination was correlated with negative interpersonal feelings, but that this effect on negative interpersonal feelings was not immediately evident after being asked to ruminate versus distract on a negative relationship event. This, in turn, would have implications for our understanding of rumination by highlighting whether the costs of rumination are immediate, or whether one needs to be aware of hidden costs that may only emerge after a sustained period of rumination.

In an effort to focus on a more homogenous sample, this thesis has focused specifically on adult heterosexual relationships. As a result, while we now know the effect of rumination and co-rumination in this context, we do not know the effect of rumination on adult homosexual relationships. Given gender differences in the prevalence of rumination and co-rumination, and the gender differences previously discussed in Chapter 4 in regards to the encoding of emotion, differences may occur in the consequences of rumination and co-rumination in homosexual versus heterosexual relationships. Further, we do not know whether rumination may also have consequences for other relationships for adults (e.g. friends, extended family, or co-workers). To date, only one study (Haggard et al., 2011) in the literature has explored co-rumination with a colleague. No studies have looked at rumination in the context of adult same-sex friendships. Given the importance of considering the context of rumination highlighted in this thesis, and that Calmes and Roberts (2008) have suggested differences in the quality of different types of relationships may contribute to differences identified between co-rumination in same-sex friendships and romantic relationships, it would appear important for future research to explore these areas in order to further inform our understanding of the unique consequences of ruminative thought.

Conclusions

The central finding of this thesis is that rumination is not simply a repetitive style of thought that affects depressed mood. Instead results suggest that individuals who choose to regulate their emotions with rumination can expect to experience greater levels of negative emotion and more negative interpersonal feelings. Individuals who chose to ruminate can also expect that doing so may have consequences for their partner, resulting in a decrease in their partner's interpersonal feelings. These consequences appear to be specific to internalised rumination, with no negative emotional consequences identified if the individual decides they would like to ruminate together with their partner. The exploration of contributors to these consequences has highlighted that rumination does not stand alone, with the individual's IWM and the specific context in which the individual decides to ruminate contributing to the specific consequences of rumination identified.

References

Abela, J. R., & Hankin, B. L. (2011). Rumination as a vulnerability factor to depression during the transition from early to middle adolescence: A multiwave longitudinal study. *Journal of Abnormal Psychology, 120*(2), 259-271.

Abela, J. R., Vanderbilt, E., & Rochon, A. (2004). A test of the integration of the response styles and social support theories of depression in third and seventh grade children. *Journal of Social and Clinical Psychology, 23*(5), 653-674.

Abremson, L. Y., Alloy, L. B., Hankin, B. L., Haefel, G. J., McCoon, D. G., & Gibb, B. E. (2002). Cognitive vulnerability-stress models of depression in a self-regulatory and psychobiological context. In I. H. Gotlib & C. L. Hammen (Eds.), *Handbook of Depression* (pp. 268-294). New York, NY: Guilford Press.

Acitelli, L. K., Kenny, D. A., & Weiner, D. (2001). The importance of similarity and understanding of partners' marital ideals to relationship satisfaction. *Personal Relationships, 8*, 167–185.

Ainsworth, M., Blehar, M., Walters, E., & Wall, S. (1978). *Patterns of Attachment: A Psychological Study of the Strange Situaiton*. Hillsdale, NJ: Erlbaum.

Akbağ, M., & Erden İmamoğlu, S. (2010). The prediction of gender and attachment styles on shame, guilt, and loneliness. *Kuram ve Uygulamada Eğitim Bilimleri, 10*(2), 669-682.

Akiyoshi, J., Yamauchi, C., Furuta, M., Katsuragi, S., Kohno, Y., Yamamoto, Y., Fujii, I. (1998). Relationship between SCL-90, Maudsley Personality Inventory and CCK4-induced intracellular calcium response in T cells. *Psychiatry Research, 81*(3), 381-386.

Aldao, A., Nolen-Hoeksema, S., & Schweizer, S. (2010). Emotion-regulation strategies across psychopathology: A meta-analytic review. *Clinical Psychology Review, 30*(2), 217-237.

Alfaraj, A. M., Spada, M. M., Nika, A. V., Puffett, A., & Meer, S. (2009). Positive beliefs about rumination in depressed and non-depressed pregnant women: A preliminary investigation. *Journal of Reproductive and Infant Psychology, 27*(1), 54-60.

Anestis, M. D., Anestis, J. C., Selby, E. A., & Joiner, T. E. (2009). Anger rumination across forms of aggression. *Personality and Individual Differences, 46*(2), 192-196.

Arai, T., & Yukawa, S. (2006). Verbalization for controlling anger. *Japanese Journal of Counseling Science, 39*(1), 1-10.

Arbuckle, J. L., & Wothke, W. (1999). *AMOS 4.0 User's Guide*. Chicago: Small Waters Corporation.

Armey, M. F., Fresco, D. M., Moore, M. T., Mennin, D. S., Turk, C. L., Heimberg, R. G., Alloy, L. B. (2009). Brooding and pondering: Isolating the active ingredients of depressive rumination with exploratory factor analysis and structural equation modeling. *Assessment, 16*(4), 315-327.

Aron, A., Aron, E. N., & Smollan, D. (1992). Inclusion of other in the self scale and the structure of interpersonal closeness. *Journal of Personality and Social Psychology, 63*(4), 596-612.

Asher, S. R., Parker, J. G., & Walker, D. L. (1996). Distinguishing friendship from acceptance: Implications for intervention and assessment. In W. M. Bukowski, A. F. Newcomb & W. W. Hartup (Eds.), *The Company they Keep: Friendship in Childhood and Adolescence* (pp. 366-405). New York, NY: Cambridge University Press.

Azadi, M., & Tehrani, M. M. (2010). Emotional intelligence and attachment styles. *Journal of Iranian Psychologists, 7*(25), 49-56.

Bagby, R. M., Rector, N. A., Segal, Z. V., Joffe, R. T., Levitt, A. J., Kennedy, S. H., & Levitan, R. D. (1999). Rumination and distraction in major depression: Assessing response to pharmacological treatment. *Journal of Affective Disorders, 55*(2-3), 225-229.

Balsamo, M. (2010). Anger and depression: Evidence of a possible mediating role for rumination. *Psychological Reports, 106*(1), 3-12.

Bartholomew, K., & Horowitz, L. M. (1991). Attachment styles among young adults: A test of a four-category model. *Journal of Personality and Social Psychology, 61*(2), 226-244.

Berkowitz, L. (1999). Anger. In T. Dalgelish & M. J. Power (Eds.), *Handbook of Cognition and Emotion* (pp. 411-428). New York, NJ: John Wiley & Sons.

Berry, J. W., Worthington, E. L., O'Connor, L. E., Parrott, L., & Wade, N. G. (2005). Forgivingness, vengeful rumination, and affective traits. *Journal of Personality, 73*(1), 183-225.

Berscheid, E., Snyder, M., & Omoto, A. M. (1989). The relationship closeness inventory: Assessing the closeness of interpersonal relationships. *Journal of Personality and Social Psychology, 57*, 792-807.

Bevan, J. L. (2006). Testing and refining and consequence model of jealousy across relational contexts and jealousy expression messages. *Communication Reports, 19*(1-2), 31-44.

Blagden, J. C., & Craske, M. G. (1996). Effects of active and passive rumination and distraction: A pilot replication with anxious mood. *Journal of Anxiety Disorders, 10*(4), 243-252.

Blanchard-Fields, F., Chen, Y., & Norris, L. (1997). Everyday problem solving across the adult life span: Influence of domain specificity and cognitive appraisal. *Psychology and Aging, 12*, 684-693.

Bodenmann, G., & Cina, A. (2005). Stress and Coping Among Stable-Satisfied, Stable-Distressed, and Separated/Divorced Swiss Couples: A 5-Year Prospective Longitudinal Study. *Journal of Divorce & Remarriage, 44*(1-2), 71-89.

Bookwala, J., & Schulz, R. (1996). Spousal similarity in subjective well-being: The cardiovascular health study. *Psychology and Aging, 11*(4), 582-590.

Borders, A., Barnwell, S. S., & Earleywine, M. (2007). Alcohol-aggression expectancies and dispositional rumination moderate the effect of alcohol consumption on alcohol-related aggression and hostility. *Aggressive Behavior, 33*(4), 327-338.

Borders, A., Earleywine, M., & Jajodia, A. (2010). Could mindfulness decrease anger, hostility, and aggression by decreasing rumination? *Aggressive Behavior, 36*(1), 28-44.

Bosacki, S. L., & Moore, C. (2004). Preschoolers' understanding of simple and complex emotions: Links with gender and language. *Sex Roles, 50*(9-10), 659-675.

Bouthillier, D., Julien, D., Dubé, M., Bélanger, I., & Hamelin, M. (2002). Predictive validity of adult attachment measures in relation to emotion regulation behaviors in marital interactions. *Journal of Adult Development, 9*(4), 291-305.

Bower, G. H. (1981). Mood and memory. *American Psychologist, 36*(2), 129-148.

Bowlby, J. (1969). *Attachment and Loss. Volume I. Attachment*. London: The Hogarth Press.

Bowlby, J. (1973). *Attachment and Loss: Volume II. Seperation: Anxiety and Anger*. New York: Basic Books.

Braithwaite, S. R., Selby, E. A., & Fincham, F. D. (2011). Forgiveness and relationship satisfaction: Mediating mechanisms. *Journal of Family Psychology, 25*(4), 551-559. doi: 10.1037/a0024526

Brennan, K., Clark, C., & Shaver, P. (1998). Self-report measurement of adult romantic attachment: An integrative overview. In J. Simpson & W. Rholes (Eds.), *Attachment Theory and Close Relationships* (pp. 46-76). New York: Guilford Press.

Brown, R. P., & Phillips, A. (2005). Letting bygones be bygones: Further evidence for the validity of the tendency to forgive scale. *Personality and Individual Differences, 38*(3), 627-638.

Buhrmester, D., & Prager, K. (1995). Patterns and functions of selfdisclosure during childhood and adolescence. In K. J. Rotenberg (Ed.), *Disclosure Processes in Children and Adolescents*. New York: Cambridge University Press.

Burleson, B. R., & Denton, W. H. (1992). A new look at similarity and attraction in marriage: Similarities in social-cognitive and communication skills as predictors of attraction and satisfaction. *Communication Monographs, 59,* 268–287.

Burnette, J. L., Davis, D. E., Green, J. D., Worthington, E. L., & Bradfield, E. (2009). Insecure attachment and depressive symptoms: The mediating role of rumination, empathy, and forgiveness. *Personality and Individual Differences, 46*(3), 276-280.

Burnette, J. L., Taylor, K. W., Worthington, E. L., & Forsyth, D. R. (2007). Attachment and trait forgivingness: The mediating role of angry rumination. *Personality and Individual Differences, 42*(8), 1585-1596.

Burwell, R. A., & Shirk, S. R. (2007). Subtypes of rumination in adolescence: Associations between brooding, reflection, depressive symptoms and coping. *Journal of Clinical Child and Adolescent Psychology, 36*(1), 56-65.

Bushman, B. J. (2002). Does venting anger feed or extinguish the flame? Catharsis, rumination, distraction, anger and aggressive responding. *Personality and Social Psychology Bulletin, 28*(6), 724-731.

Bushman, B. J., Bonacci, A. M., Pedersen, W. C., Vasquez, E. A., & Miller, N. (2005). Chewing on It can chew you up: Effects of rumination on triggered displaced aggression. *Journal of Personality and Social Psychology, 88*(6), 969-983.

Buss, D. M. (2005). *The Handbook of Evolutionary Psychology*. New Jersey: John Wiley & Sons.

Butler, E. A., & Gross, J. J. (2004). Hiding feelings in social contexts: Out of sight is not out of mind. In P. Philippot & R. S. Feldman (Eds.), *The Regulation of Emotion* (pp. 101-126). Mahwah, NJ: Lawrence Erlbaum Associates Publishers.

Butler, L., & Nolen-Hoeksema, S. (1994). Gender differences in responses to depressed mood in a college sample. *Sex Roles, 30*(5-6), 331-346.

Byrd-Craven, J., Geary, D. C., Rose, A. J., & Ponzi, D. (2008). Co-ruminating increases stress hormone levels in women. *Hormones and Behavior, 53*(3), 489-492.

Byrd-Craven, J., Granger, D. A., & Auer, B. J. (2011). Stress reactivity to co-rumination in young women's friendships: Cortisol, alpha-amylase, and negative affect focus. *Journal of Social and Personal Relationships, 28*(4), 469-487.

Calmes, C. A., & Roberts, J. E. (2008). Rumination in interpersonal relationships: Does co-rumination explain gender differences in emotional distress and relationship satisfaction among college students? *Cognitive Therapy and Research, 32*(4), 577-590.

Caprara, G. V., Paciello, M., Gerbino, M., & Cugini, C. (2007). Individual differences conducive to aggression and violence: Trajectories and correlates of irritability and hostile rumination through adolescence. *Aggressive Behavior, 33*(4), 359-374.

Carnelley, K. B., Pietromonaco, P. R., & Jaffe, K. (1994). Depression, working models of others, and relationship functioning. *Journal of Personality and Social Psychology, 66*(1), 127-140.

Carr, S., & Fitzpatrick, N. (2011). Experiences of dyadic sport friendships as a function of self and partner attachment characteristics. *Psychology of Sports Exercise, 2011*(12), 383-391.

Carson, C. L., & Cupach, W. R. (2000). Fueling the flames of the green-eyed monster: The role of ruminative thought in reaction to romantic jealousy. *Western Journal of Communication, 64*(3), 308-329.

Carter, J. D., Frampton, C. M., Mulder, R. T., Luty, S. E., McKenzie, J. M., & Joyce, P. R. (2009). Rumination: Relationship to depression and personality in a clinical sample. *Personality and Mental Health, 3*(4), 275-283. doi: 10.1002/pmh.91

Cheung, M. S. P., Gilbert, P., & Irons, C. (2004). An exploration of shame, social rank and rumination in relation to depression. *Personality and Individual Differences, 36*(5), 1143-1153.

Ciesla, J. A., Dickson, K. S., Anderson, N. L., & Neal, D. J. (2011). Negative repetitive thought and college drinking: Angry rumination, depressive rumination, co-rumination, and worry. *Cognitive Therapy and Research, 35*(2), 142-150.

Ciesla, J. A., & Roberts, J. E. (2007). Rumination, negative cognition, and their interactive effects on depressed mood. *Emotion, 7*(3), 555-565.

Clark, D. (1993). Stress and the cognitive-conversational benefits of social interaction. . *Journal of Social and Clinical Psychology, 12*, 25-55.

Clark, D., & Teasdale, J. (1982). Diurnal variation in clinical depression and accessibility of memories of positive and negative experiences. *Journal of Abnormal Psychology, 91*(2), 87-95.

Cohen, S., Schulz, M. S., Weiss, E., & Waldingner, R. J. (2012). Eye of the beholder: The individual and dyadic contributions of empathic accuracy and perceived empathic effort to relationship satisfaction. *Journal of Family Psychology, 26*(2), 236-245.

Collins, K., & Bell, R. (1997). Personality and aggression: The dissipation–rumination scale. *Personality and Individual Differences, 22*(5), 751-755.

Collins, N. L., & Read, S. J. (1990). Adult attachment, working models, and relationship quality in dating couples. *Journal of Personality and Social Psychology, 58*(4), 644-663.

Conway, M., Csank, P. A., Holm, S. L., & Blake, C. K. (2000). On assessing individual differences in rumination on sadness. *Journal of Personality Assessment, 75*(3), 404-425.

Cook, W. L., & Kenny, D. A. (2005). The actor-partner interdependence model: A model of bidirectional effects in developmental studies. *International Journal of Behavioral Development, 29*(2), 101-109.

Cooper, M. L., Shaver, P. R., & Collins, N. L. (1998). Attachment styles, emotion regulation, and adjustment in adolescence. *Journal of Personality and Social Psychology, 74*(5), 1380-1397.

Cupach, W. R., & Spitzberg, B. H. (2004). *The Dark Side of Relationship Pursuit: From Attraction to Obsession and Stalking*. Mahwah, NJ: Lawrence Erlbaum Associates Publishers.

Daniel, S. I. F. (2006). Adult attachment patterns and individual psychotherapy: A review. *Clinical Psychology Review, 26*(8), 968-984.

Davila, J., Hershenberg, R., Feinstein, B., Gorman, K., Bhatia, V., & Starr, L. (2012). Frequency and quality of social networking among young adults: Associations

with depressive symptoms, rumination, and co-rumination. *Psychology of Popular Media Culture, 1*, 1-15.

Davis, R. N., & Nolen-Hoeksema, S. (2000). Cognitive inflexibility among ruminators and non-ruminators. *Cognitive Therapy and Research, 24*(6), 699-711.

Dennison, S. M., & Stewart, A. (2006). Facing rejection: New relationships, broken relationships, shame, and stalking. *International Journal of Offender Therapy and Comparative Criminology, 50*(3), 324-337.

Denson, T. F., Moulds, M. R., & Grisham, J. L. (2012). The effects of analytical rumination, reappraisal, and distraction on anger experience. *Behavior Therapy, 43*(2), 355-364.

Derogatis, L. R., & Cleary, P. (1977). Confirmation of the dimensional structure of the SCL-90: A study in construct validation. *Journal of Clinical Psychology, 33*(4), 981-989.

Derogatis, L. R., Lipman, R. S., & Covi, L. (1973). SCL90: An outpatient psychiatric rating scale - preliminary report. *Psychopharmacology Bulletin, 9*, 13-28.

Dezfulian, T. (2005). *Determints and behavioural correlates of state level anxiety in clinical couple interactions. (Unpublished dissertation).* University of Maryland, Maryland.

Domingue, R., & Mollen, D. (2009). Attachment and conflict communication in adult romantic relationships. *Journal of Social and Personal Relationships, 26*(5), 678-696.

Donaldson, C., & Lam, D. (2004). Rumination, mood and social problem-solving in major depression. *Psychological Medicine: A Journal of Research in Psychiatry and the Allied Sciences, 34*(7), 1309-1318.

Dykas, M. J., & Cassidy, J. (2011). Attachment and the processing of social information across the life span: Theory and evidence. *Psychological Bulletin, 137*(1), 19-46.

Ein-Dor, T., Mikulincer, M., & Shaver, P. R. (2011). Attachment insecurities and the processing of threat-related information: Studying the schemas involved in insecure people's coping strategies. *Journal of Personality and Social Psychology, 101*(1), 78-93.

El-Sheikh, M., Buckhalt, J. A., & Reiter, S. L. (2000). Gender-related effects in emotional responding on resolved and unresolved interpersonal conflict. *Sex Roles, 43*(9-10), 719-734. doi: 10.1023/a:1007160709731

Fabiansson, E. C., Denson, T. F., Moulds, M. L., Grisham, J. R., & Schira, M. M. (2012). Don't look back in anger: Neural correlates of reappraisal, analytical rumination, and angry rumination during recall of an anger-inducing autobiographical memory. *NeuroImage, 59*(3), 2974-2981.

Feldner, M. T., Leen-Feldner, E. W., Zvolensky, M. J., & Lejuez, C. W. (2006). Examining the association between rumination, negative affectivity, and negative affect induced by a paced auditory serial addition task. *Journal of Behavior Therapy and Experimental Psychiatry*, *37*(3), 171-187.

Fernando, K. (2006). *A good women. Silencing the self, rumination and depression in romantic relationships. (Unpublished dortoral dissertation).* Unpublished thesis manuscrpit, University of Otago, Dunedin.

Field, A. P. (2009). *Discovering Statistics Using SPSS (3rd ed.)*. London: Sage.

Fletcher, G. J. (2002). *The New Science of Intimate Relationships*. Massachusetts: Blackwell.

Fletcher, G. J., Simpson, J. A., & Thomas, G. (2000). The measurement of perceived relationship quality components: A confirmatory factor analytic approach. *Personality and Social Psychology Bulletin, 26*(3), 340-354.

Fonagy, P. (1998). An attachment theory approach to treatment of the difficult patient. *Bulletin of the Menninger Clinic, 62*(2), 147-169.

Forgas, J. P., & Bower, G. H. (1987). Mood effects on person-perception judgments. *Journal of Personality and Social Psychology, 53*(1), 53-60.

Fraley, R. C., & Shaver, P. R. (2000). Adult romantic attachment: Theoretical developments, emerging controversies, and unanswered questions. *Review of General Psychology, 4*(2), 132-154.

Frazier, P. A., & Esterly, E. (1990). Correlates of relationship beliefs: Gender, relationship experience and relationship satisfaction. *Journal of Social and Personal Relationships, 7*(3), 331-352.

Garnefski, N., & Kraaij, V. (2006). Relationships between cognitive emotion regulation strategies and depressive symptoms: A comparative study of five specific samples. *Personality and Individual Differences, 40*(8), 1659-1669.

Garnefski, N., Teerds, J., Kraaij, V., Legerstee, J., & van den Kommer, T. (2004). Cognitive emotion regulation strategies and depressive symptoms: Differences between males and females. *Personality and Individual Differences, 36*(2), 267-276.

Gilbert, P., Cheung, M., Irons, C., & McEwan, K. (2005). An Exploration into depression-focused and anger-focused rumination in relation to depression in a student population. *Behavioural and Cognitive Psychotherapy, 33*(3), 273-283.

Goldshmidt, O. T., & Weller, L. (2000). 'Talking emotions': Gender differences in a variety of conversational contexts. *Symbolic Interaction, 23*(2), 117-134.

Goss, K., Gilbert, P., & Allan, S. (1994). An exploration of shame measures: The other as shamer scale. *Personality and Individual Differences, 17*, 713-717.

Grabe, S., Hyde, J. S., & Lindberg, S. M. (2007). Body objectification and depression in adolescents: The role of gender, shame, and rumination. *Psychology of Women Quarterly*, *31*(2), 164-175.

Grisham, J. R., Flower, K. N., Williams, A. D., & Moulds, M. L. (2011). Reappraisal and rumination during recall of a sad memory. *Cognitive Therapy and Research, 35*(3), 276-283.

Gross, J. J. (1998). The emerging field of emotion regulation: An integrative review. *Review of General Psychology. Special Issue: New Directions in Research on Emotion, 2*(3), 271-299.

Gross, J. J. (1999). Emotion regulation: Past, present, future. *Cognition and Emotion, 13*(5), 551 - 573.

Gross, J. J. (2007). *Handbook of Emotion Regulation*. New York, London: Guilford Press.

Gross, J. J., & Thompson, R. A. (2007). Emotion regulation: Conceptual foundations. In J. J. Gross (Ed.), *Handbook of Emotion Regulation* (pp. 3-24). New York, London: Guilford Press.

Grossmann, I., & Kross, E. (2010). The impact of culture on adaptive versus maladaptive self-reflection. *Psychological Science, 21*(8), 1150-1157.

Haggard, D. L., Robert, C., & Rose, A. J. (2011). Co-rumination in the workplace: Adjustment trade-offs for men and women who engage in excessive discussions of workplace problems. *Journal of Business and Psychology, 26*(1), 27-40.

Halford, W. K., & Sanders, M. R. (1988). Dyadic behaviours and requests for change in Australian maritally distressed and non-distressed couples. *Australian Journal of Psychology, 40*(1), 45-52.

Hankin, B. L., Abramson, L. Y., Moffitt, T. E., McGee, R., Silva, P. A., & Angell, K. E. (1998). Development of depression from preadolescence to young adulthood: Emerging gender differences in a 10-year longitudinal study. *Journal of Abnormal Psychology, 107*, 128–140.

Hankin, B. L., Stone, L., & Wright, P. A. (2010). Co-rumination, interpersonal stress generation, and internalizing symptoms: Accumulating effects and transactional influences in a multiwave study of adolescents. *Development and Psychopathology, 22*(1), 217-235.

Harder, D. W., Lewis, S. J., Butcher, J. N., & Spielberger, C. D. (1987). The assessment of shame and guilt *Advances in Personality Assessment. Volume 6.* (pp. 89-114). Hillsdale, NJ: Lawrence Erlbaum Associates Publishers.

Harder, D. W., & Zalma, A. (1990). Two promising shame and guilt scales: A construct validity comparison. *Journal of Personality Assessment, 55*, 729-745.

Harrington, J. A., & Blankenship, V. (2002). Ruminative thoughts and their relation to depression and anxiety. *Journal of Applied Social Psychology, 32*(3), 465-485.

Hatfield, E., Cacioppo, J. T., & Rapson, R. L. (1994). *Emotional Contagion*. New York, NY: Cambridge University Press.

Hazan, C., & Shaver, P. R. (1987). Romantic love conceptualised as an attachment process. *Journal of Personality and Social Psychology, 52*(511-524).

Higgins, E. T. (1987). Self-discrepancy theory. *Psychological Review, 94*, 1120-1134.

Holland, A. S., & Roisman, G. I. (2010). Adult attachment security and young adults' dating relationships over time: Self-reported, observational, and physiological evidence. *Developmental Psychology, 46*(2), 552-557.

Hong, R. Y. (2007). Worry and rumination: Differential associations with anxious and depressive symptoms and coping behavior. *Behaviour Research and Therapy, 45*(2), 277-290.

Horowitz, L. M., Wilner, N., & Alvarez, W. (1979). Impact of events scale: A measure of subjective stress. *Psychosomatic Medicine, 41*, 209-218.

Huber, C. H., Navarro, R. L., Womble, M. W., & Mumme, F. L. (2010). Family resilience and midlife marital satisfaction. *The Family Journal, 18*(2), 136-145.

Joireman, J. (2004). Empathy and the self-absorption paradox II: Self-rumination and self-reflection as mediators between shame, guilt, and empathy. *Self and Identity, 3*(3), 225-238.

Jose, P. E., Wilkins, H., & Spendelow, J. S. (2012). Does social anxiety predict rumination and co-rumination among adolescents? *Journal of Clinical Child and Adolescent Psychology, 41*(1), 86-91.

Jostmann, N. B., Karremans, J., & Finkenauer, C. (2011). When love is not blind: Rumination impairs implicit affect regulation in response to romantic relationship threat. *Cognition and Emotion, 25*(3), 506-518.

Just, N., & Alloy, L. B. (1997). The response styles theory of depression: Tests and an extension of the theory. *Journal of Abnormal Psychology, 106*(2), 221-229.

Kennedy-Moore, E., & Watson, J. C. (2001). How and when does emotional expression help? *Review of General Psychology, 5*(3), 187-212.

Kenny, D. A., & Cook, W. (1999). Partner effects in relationship research: Conceptual issues, analytic difficulties, and illustrations. *Personal Relationships, 6*(4), 433-448.

Kenny, D. A., Kashy, D. A., & Cook, W. L. (2006). *Dyadic Data Analysis*. New York, NY: Guilford Press.

Kobak, R. R., & Sceery, A. (1988). Attachment in late adolescence: Working models, affect regulation, and representations of self and others. *Child Development, 59*(1), 135-146.

Kramer, R. M. (1998). Paranoid cognition in social systems: Thinking and acting in the shadow of doubt. *Personality and Social Psychology Review, 2*(4), 251-275.

Kring, A. M., & Werner, K. H. (2004). Emotion regulation and psychopathology. In P. Philippot & R. S. Feldman (Eds.), *The Regulation of Emotion* (pp. 359-385). Mahwah, NJ: Lawrence Erlbaum Associates Publishers.

Kross, E., Ayduk, O., & Mischel, W. (2005). When asking 'why' does not hurt: Distinguishing rumination from reflective processing of negative emotions. *Psychological Science, 16*(9), 709-715.

Kuehner, C., Huffziger, S., & Liebsch, K. (2009). Rumination, distraction and mindful self-focus: Effects on mood, dysfunctional attitudes and cortisol stress response. *Psychological Medicine: A Journal of Research in Psychiatry and the Allied Sciences, 39*(2), 219-228.

Lam, D., Schuck, N., Smith, N., Farmer, A., & Checkley, S. (2003). Response style, interpersonal difficulties and social functioning in major depressive disorder. *Journal of Affective Disorders, 75*(3), 279-283.

Lara, M. E., Klein, D. N., & Kasch, K. L. (2000). Psychosocial predictors of the short-term course and outcome of major depression: A longitudinal study of a nonclinical sample with recent-onset episodes. *Journal of Abnormal Psychology, 109*(4), 644-650.

Laurenceau, J. P., Barrett, L. F., & Pietromonaco, P. R. (1998). Intimacy as an interpersonal process: The importance of self-disclosure, partner disclosure, and

perceived partner responsiveness in interpersonal exchanges. *Journal of Personality and Social Psychology, 74*(5), 1238-1251.

Lavallee, K. L., & Parker, J. G. (2009). The role of inflexible friendship beliefs, rumination, and low self-worth in early adolescents' friendship jealousy and adjustment. *Journal of Abnormal Child Psychology, 37*(6), 873-885.

Levens, S. M., Muhtadie, L., & Gotlib, I. H. (2009). Rumination and impaired resource allocation in depression. *Journal of Abnormal Psychology, 118*(4), 757-766.

Lo, C. S. L., Ho, S. M. Y., & Hollon, S. D. (2010). The effects of rumination and depressive symptoms on the prediction of negative attributional style among college students. *Cognitive Therapy and Research, 34*(2), 116-123.

Lopez, F. G., Gover, M. R., Leskela, J., Sauer, E. M., Schirmer, L., & Wyssmann, J. (1997). Attachment styles, shame, guilt, and collaborative problem-solving orientations. *Personal Relationships, 4*(2), 187-199.

Lyubomirsky, S., Caldwell, N. D., & Nolen-Hoeksema, S. (1998). Effects of ruminative and distracting responses to depressed mood on retrieval of autobiographical memories. *Journal of Personality and Social Psychology, 75*(1), 166-177.

Lyubomirsky, S., & Nolen-Hoeksema, S. (1993). Self-perpetuating properties of dysphoric rumination. *Journal of Personality and Social Psychology, 65*(2), 339-349.

Lyubomirsky, S., & Nolen-Hoeksema, S. (1995). Effects of self-focused rumination on negative thinking and interpersonal problem solving. *Journal of Personality and Social Psychology, 69*(1), 176-190.

Lyubomirsky, S., Tucker, K. L., Caldwell, N. D., & Berg, K. (1999). Why ruminators are poor problem solvers: Clues from the phenomenology of dysphoric rumination. *Journal of Personality and Social Psychology, 77*(5), 1041-1060.

Magai, C., & Passman, V. (1997). The interpersonal basis of emotional behaviour and emotion regulation in adulthood. In K. W. Schaie & M. P. Lawton (Eds.), *Annual Review of Gerontology and Geriatrics. Focus on Emotion and Adult Development* (Vol. 17, pp. 104-137). New York, NY: Springer.

Main, M., & Solomon, J. (1990). Procedures for identifying infants as disorganized/disoriented during the ainsworth strange situation In M. T. Greenberg, D. Cicchetti & M. Cummings (Eds.), *Attachment in the Preschool years: Theory, Research, and Intervention* (pp. 121-160). Chicago: The University of Chicago Press.

Margolese, S. K., Markiewicz, D., & Doyle, A. B. (2005). Attachment to parents, best friend, and romantic partner: predicting different pathways to depression in adolescence. *Journal of Youth and Adolescence, 34*(6), 637-650.

Martin, L. L., & Tesser, A. (1989). Toward a motivational and structural theory of ruminative thought. In J. S. Uleman & J. A. Bargh (Eds.), *Unintended Thought* (pp. 306-326). New York, NY: Guilford Press.

Martin, R. C., & Dahlen, E. R. (2005). Cognitive emotion regulation in the prediction of depression, anxiety, stress, and anger. *Personality and Individual Differences, 39*(7), 1249-1260.

Maxwell, J. P. (2004). Anger rumination: An antecedent of athlete aggression? *Psychology of Sport and Exercise, 5*(3), 279-289.

Mayer, J. D., & Gaschke, Y. N. (1988). The experience and meta-experience of mood. *Journal of Personality and Social Psychology, 55*(1), 102-111.

McBride, C., & Bagby, R. M. (2006). Rumination and interpersonal dependency: Explaining women's vulnerability to depression. *Canadian Psychology, 47*(3), 184-194.

McCullough, M. E., Bellah, C. G., Kilpatrick, S. D., & Johnson, J. L. (2001). Vengefulness: Relationships with forgiveness, rumination, well-being, and the big five. *Personality and Social Psychology Bulletin, 27*(5), 601-610.

McLaughlin, K. A., Borkovec, T. D., & Sibrava, N. J. (2007). The effects of worry and rumination on affect states and cognitive activity. *Behavior Therapy, 38*(1), 23-38.

McNulty, J. K., & Russell, V. M. (2010). When "negative" behaviors are positive: A contextual analysis of the long-term effects of problem-solving behaviors on changes in relationship satisfaction. *Journal of Personality and Social Psychology, 98*(4), 587-604.

McWilliams, L. A., & Bailey, S. J. (2010). Associations between adult attachment ratings and health conditions: Evidence from the national comorbidity survey replication. *Health Psychology, 29*(4), 446-453.

Meyer, B., & Pilkonis, P. A. (2001). Attachment style. *Psychotherapy, 38*(4), 466-472.

Mezulis, A. H., Abramson, L. Y., & Hyde, J. S. (2002). Domain specificity of gender differences in rumination. *Journal of Cognitive Psychotherapy, 16*(4), 421-434.

Mikulincer, M., & Florian, V. (1998). The relationship between adult attachment styles and emotional and cognitive reactions to stressful events. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment Theory and Close Relationships* (pp. 143-165). New York, London: The Guilford Press.

Mikulincer, M., & Florian, V. (2004). Attachment style and affect regulation: Implications for coping with stress and mental health. In M. B. Brewer & M. Hewstone (Eds.), *Applied Social Psychology* (pp. 28-49). Malden, MA: Blackwell

Mikulincer, M., Shaver, P. R., & Horesh, N. (2006). Attachment bases of emotion regulation and posttraumatic adjustment. In D. K. Snyder, J. A. Simpson & J. N. Hughes (Eds.), *Emotion Regulation in Couples and Families: Pathways to*

Dysfunction and Health (pp. 77-99). Washington, DC: American Psychological Association.

Miner, M. (2009). The impact of child-parent attachment, attachment to god, and religious orientation on psychological adjustment. *Journal of Psychology and Theology, 37*, 114-124.

Moberly, N. J., & Watkins, E. R. (2008). Ruminative self-focus and negative affect: An experience sampling study. *Journal of Abnormal Psychology, 117*(2), 314-323.

Mondor, J., McDuff, P., Lussier, Y., & Wright, J. (2011). Couples in therapy: Actor-partner analyses of the relationships between adult romantic attachment and marital satisfaction. *American Journal of Family Therapy, 39*(2), 112-123.

Moore, K. A., McCabe, M. P., & Brink, R. B. (2001). Are married couples happier in their relationships than cohabiting couples? Intimacy and relationship factors. *Sexual and Relationship Therapy, 16*(1), 35-46.

Morrow, J. (1990). *The effects of rumination, distraction, and negative mood on memories, evaluations, and problem solving. (Unpublished dissertation).* Stanford University, Stanford, California

Morrow, J., & Nolen-Hoeksema, S. (1990). Effects of responses to depression on the remediation of depressive affect. *Journal of Personality and Social Psychology, 58*, 519-527.

Moulds, M. L., Yap, C. S. L., Kerr, E., Williams, A. D., & Kandris, E. (2010). Metacognitive beliefs increase vulnerability to rumination. *Applied Cognitive Psychology, 24*(3), 351-364.

Muris, P., Roelofs, J., Rassin, E., Franken, I., & Mayer, B. (2005). Mediating effects of rumination and worry on the links between neuroticism, anxiety and depression. *Personality and Individual Differences, 39*(6), 1105-1111.

Myers, D. E., & Diener, E. (1995). Who is happy? *Psychological Science, 6*, 10-19.

Needles, D. J., & Abramson, L. Y. (1990). Positive life events, attributional style, and hopefulness: Testing a model of recovery from depression. *Journal of Abnormal Psychology, 99*(2), 156-165.

Niederhofer, H., & Reiter, A. (2003). About the association between attachment and temperament at the age of 6 months. *Psychiatria Danubina, 15*(1-2), 7-12.

Noguchi, R., & Fujiu, H. (2007). The effect of depression and anger-in on affect and cardiac response. *Japanese Journal of Health Psychology, 20*(1), 64-72.

Nolan, S. A., Roberts, J. E., & Gotlib, I. H. (1998). Neuroticism and ruminative response style as predictors of change in depressive symptomatology. *Cognitive Therapy and Research, 22*(5), 445-455.

Nolen-Hoeksema, S. (1991). Responses to depression and their effects on the duration of depressive episodes. *Journal of Abnormal Psychology, 100*(4), 569-582.

Nolen-Hoeksema, S. (2000). The role of rumination in depressive disorders and mixed anxiety/depressive symptoms. *Journal of Abnormal Psychology, 109*(3), 504-511.

Nolen-Hoeksema, S. (2012). Emotion regulation and psychopathology: The role of gender. *Annual Review of Clinical Psychology, 8*, 61-87.

Nolen-Hoeksema, S., Corte, C., Baumeister, R. F., & Vohs, K. D. (2004). Gender and self-regulation. In R. F. Baumeister & K. D. Vohs (Eds.), *Handbook of Self-regulation: Research, Theory, and Applications* (pp. 411-421). New York, NY: Guilford Press.

Nolen-Hoeksema, S., & Davis, C. G. (1999). "Thanks for sharing that": Ruminators and their social support networks. *Journal of Personality and Social Psychology, 77*(4), 801-814.

Nolen-Hoeksema, S., & Girgus, J. S. (1994). The emergence of gender differences in depression during adolescence. *Psychological Bulletin, 115*(3), 424-443.

Nolen-Hoeksema, S., & Jackson, B. (2001). Mediators of the gender difference in rumination. *Psychology of Women Quarterly, 25*(1), 37-47.

Nolen-Hoeksema, S., & Morrow, J. (1991). A prospective study of depression and posttraumatic stress symptoms after a natural disaster: The 1989 loma prieta earthquake. *Journal of Personality and Social Psychology, 61*(1), 115-121.

Nolen-Hoeksema, S., & Morrow, J. (1993). Effects of rumination and distraction on naturally occurring depressed mood. *Cognition and Emotion, 7*(6), 561-570.

Nolen-Hoeksema, S., Morrow, J., & Fredrickson, B. L. (1993). Response styles and the duration of episodes of depressed mood. *Journal of Abnormal Child Psychology, 102*, 20-28.

Nolen-Hoeksema, S., Parker, L. E., & Larsen, J. (1994). Ruminative coping with depressed mood following loss. *Journal of Personality and Social Psychology, 67*, 92-104.

Nolen-Hoeksema, S., Wisco, B. E., & Lyubomirsky, S. (2008). Rethinking rumination. *Perspectives on Psychological Science, 3*(5), 400-424.

O'Mahen, H. A., Flynn, H. A., & Nolen-Hoeksema, S. (2010). Rumination and interpersonal functioning in perinatal depression. *Journal of Social and Clinical Psychology, 29*(6), 646-667.

Olson, M. L., & Kwon, P. (2008). Brooding perfectionism: Refining the roles of rumination and perfectionism in the etiology of depression. *Cognitive Therapy and Research, 32*(6), 788-802.

Orth, U., Berking, M., & Burkhardt, S. (2006). Self-conscious emotions and depression: Rumination explains why shame but not guilt is maladaptive. *Personality and Social Psychology Bulletin, 32*(12), 1608-1619.

Orth, U., Cahill, S. P., Foa, E. B., & Maercker, A. (2008). Anger and posttraumatic stress disorder symptoms in crime victims: A longitudinal analysis. *Journal of Consulting and Clinical Psychology, 76*(2), 208-218.

Paleari, F. G., Regalia, C., & Fincham, F. (2005). Marital quality, forgiveness, empathy, and rumination: A longitudinal analysis. *Personality and Social Psychology Bulletin, 31*(3), 368-378.

Papageorgiou, C., & Wells, A. (2001). Metacognitive beliefs about rumination in recurrent major depression. *Cognitive and Behavioral Practice, 8*(2), 160-164.

Parker, J. G., & Asher, S. R. (1993). Friendship and friendship quality in middle childhood: Links with peer group acceptance and feelings of loneliness and social dissatisfaction. *Developmental Psychology, 29*(4), 611-621.

Pearlin, L. I., & Schooler, C. (1978). The structure of coping. *Journal of Health and Social Behavior, 19*, 2-21.

Pearson, K. A., Watkins, E. R., & Mullan, E. G. (2011). Rejection sensitivity prospectively predicts increased rumination. *Behaviour Research and Therapy, 49*, 597-605.

Pearson, K. A., Watkins, E. R., Mullan, E. G., & Moberly, N. J. (2010). Psychosocial correlates of depressive rumination. *Behaviour Research and Therapy, 48*(8), 784-791.

Peled, M., & Moretti, M. M. (2007). Rumination on anger and sadness in adolescence: Feeling the fury and deepening of despair. *Journal of Clinical Child and Adolescent Psychology, 36*(1), 66-75.

Peled, M., & Moretti, M. M. (2010). Ruminating on rumination: Are rumination on anger and sadness differentially related to aggression and depressed mood? *Journal of Psychopathology and Behavioral Assessment, 32*(1), 108-117.

Pennebaker, J. W. (1997). Writing about emotional experiences as a therapeutic process. *Psychological Science, 8*(3), 162-166.

Peterson, R. (2001). On the use of college students in social science research: Insights from a second-order meta-analysis. *Journal of Consumer Research, 28*(3), 450-461.

Pierce, G. R., Sarason, I. G., & Sarason, B. R. (1991). General and relationship-based perceptions of social support: Are two constructs better than one? *Journal of Personality and Social Psychology, 61*(6), 1028-1039.

Pierce, G. R., Sarason, I. G., Sarason, B. R., & Solky-Butzel, J. A. (1997). Assessing the quality of personal relationships. *Journal of Social and Personal Relationships, 14*(3), 339-356.

Pyszczynski, T., Holt, K., & Greenberg, J. (1987). Depression, self-focused attention, and expectancies for positive and negative future life events for self and others. *Journal of Personality and Social Psychology, 52*(5), 994-1001.

Radloff, L. S. (1977). The CES-D Scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement, 1*(3), 385-401.

Radloff, L. S. (1991). The use of the center for epidemiologic studies depression scale in adolescents and young adults. *Journal of Youth and Adolescence, 20*(2), 149-166.

Raes, F., Hermans, D., & Williams, J. M. G. (2006). Negative bias in the perception of others' facial emotional expressions in major depression: The role of depressive rumination. *Journal of Nervous and Mental Disease, 194*(10), 796-799.

Ray, R. D., Wilhelm, F. H., & Gross, J. J. (2008). All in the mind's eye? Anger rumination and reappraisal. *Journal of Personality and Social Psychology, 94*(1), 133-145.

Repper, K. K. (2007). *The relationship between anger rumination and agression in childhood. (Unpublished doctoral dissertation).* Florida State University, Florida.

Roberts, J., Gilboa, E., & Gotlib, I. (1998). Ruminative response style and vulnerability to episodes of dysphoria: Gender, neuroticism, and episode duration. *Cognitive Therapy and Research, 22*(4), 401-423.

Roberts, J. E., Gotlib, I. H., & Kassel, J. D. (1996). Adult attachment security and symptoms of depression: The mediating roles of dysfunctional attitudes and low self-esteem. *Journal of Personality and Social Psychology, 70*(2), 310-320.

Robinson, M. S., & Alloy, L. B. (2003). Negative Cognitive Styles and Stress-Reactive Rumination Interact to Predict Depression: A Prospective Study. *Cognitive Therapy and Research, 27*(3), 275-292.

Roelofs, J., Huibers, M., Peeters, F., & Arntz, A. (2008). Effects of neuroticism on depression and anxiety: Rumination as a possible mediator. *Personality and Individual Differences, 44*(3), 576-586.

Roelofs, J., Huibers, M., Peeters, F., Arntz, A., & van Os, J. (2007). Positive and negative beliefs about depressive rumination: A psychometric evaluation of two self-report scales and a test of a clinical metacognitive model of rumination and depression. *Cognitive Therapy and Research, 34*(2), 196-205.

Roelofs, J., Rood, L., Meesters, C., te Dorsthorst, V., Bögels, S., Alloy, L. B., & Nolen-Hoeksema, S. (2009). The influence of rumination and distraction on depressed and anxious mood: A prospective examination of the response styles theory in

children and adolescents. *European Child & Adolescent Psychiatry, 18*(10), 635-642.

Rose, A. J. (2002). Co-rumination in the friendships of girls and boys. *Child Development, 73*(6), 1830-1843.

Rose, A. J., Carlson, W., & Waller, E. M. (2007). Prospective associations of co-rumination with friendship and emotional adjustment: Considering the socioemotional trade-offs of co-rumination. *Developmental Psychology, 43*(4), 1019-1031.

Rose, A. J., Schwartz, R. A., & Carlson, W. (2005). *An observational assessment of co-rumination in the friendships of girls and boys*. Paper presented at the The Costs and Benefits of Interpersonal Processes Underlying Girls' Friendships; Symposium Conducted at the Biennial Meeting of the Society for Research in Child Development, Atlanta, G.A.

Rose, A. J., Schwartz, R. A., & Carlson, W. (2005). *An observational assessment of co-rumination in the friendships of girls and boys*. Paper presented at the Symposium conducted at the biennial meeting of the Society for Research in Child Development.

Rude, S. S., Mazzetti, F. A., Pal, H., & Stauble, M. R. (2011). Social rejection: How best to think about it? *Cognitive Therapy and Research, 35*(3), 209-216.

Rusting, C. L., & Nolen-Hoeksema, S. (1998). Regulating responses to anger: Effects of rumination and distraction on angry mood. *Journal of Personality and Social Psychology, 74*(3), 790-803.

Saffrey, C., & Ehrenberg, M. (2007). When thinking hurts: Attachment, rumination, and postrelationship adjustment. *Personal Relationships, 14*(3), 351-368.

Scharfe, E., & Bartholomew, K. I. M. (1994). Reliability and stability of adult attachment patterns. *Personal Relationships, 1*(1), 23-43.

Schwartz, J. A. J., & Koenig, L. J. (1996). Response styles and negative affect among adolescents. *Cognitive Therapy and Research, 20*(1), 13-36.

Schwartz, J. L., & Thomas, A. M. (1995). Perceptions of coping responses exhibited in depressed males and females. *Journal of Social Behavior & Personality, 10*(4), 849-860.

Scott, V. B., & McIntosh, W. D. (1999). The development of a trait measure of ruminative thought. *Personality and Individual Differences, 26*(6), 1045-1056.

Sears, D. (1986). College sophomores in the laboratory: Influences of a narrow data base on social psychology's view of human nature. *Journal of Personality and Social Psychology, 51*, 515-530.

Shaver, P. R., Collins, N., & Clark, C. L. (1996). Attachment styles and internal working models of self and relationship partners. In G. J. Fletcher & J. Fitness (Eds.), *Knowledge Structures in Close Relationships: A Social Psychological Approach* (pp. 25-61). Malwah, NJ: Lawrence Erlbaum Associates Publishers.

Shaver, P. R., & Mikulincer, M. (2007). Adult attachment strategies and the regulation of emotion. In J. J. Gross (Ed.), *Handbook of Emotion Regulation* (pp. 446-465). New York, London: Guilford Press.

Shaver, P. R., Mikulincer, M., Kruglanski, A. W., & Higgins, E. T. (2007). Attachment theory and research: Core concepts, basic principles, conceptual bridges *Social Psychology: Handbook of Basic Principles (2nd ed.)* (pp. 650-677). New York, NY: Guilford Press.

Shiota, M. N., Campos, B., Keltner, D., & Hertenstein, M. J. (2004). Positive emotion and the regulation of interpersonal relationships. In P. Philippot & R. S. Feldman

(Eds.), *The Regulation of Emotion* (pp. 127-155). Mahwah, NJ: Lawrence Erlbaum Associates Publishers.

Shirk, S. R., Gudmundsen, G. R., & Burwell, R. A. (2005). Links among attachment-related cognitions and adolescent depressive symptoms. *Journal of Clinical Child & Adolescent Psychology, 34*(1), 172-181.

Siegel, D. J. (2001). Toward an interpersonal neurobiology of the developing mind: Attachment relationships, 'mindsight,' and neural integration. *Infant Mental Health Journal, 22*(1-2), 67-94.

Siegle, G., Stienhauer, S. R., Carter, C. S., & Thase, M. E. (2000). *Convergence and divergence in measures of rumination*. Paper presented at the The Association for the Avdancement of Behaviour Therapy, New Orleans.

Siewert, K., Kubiak, T., Jonas, C., & Weber, H. (2011). Trait anger moderates the impact of anger-associated rumination on social well-being. *Personality and Individual Differences, 51*(6), 769-774.

Simonson, J., Mezulis, A., & Davis, K. (2011). Socialized to ruminate? Gender role mediates the sex difference in rumination for interpersonal events. *Journal of Social and Clinical Psychology, 30*(9), 937-959.

Simpson, J. A. (1990). Influence of attachment styles on romantic relationships. *Journal of Personality and Social Psychology, 59*(5), 971-980.

Simpson, J. A., Kim, J., Fillo, J., Ickes, W., Rholes, W. S., Oriña, M., & Winterheld, H. (2011). Attachment and the management of empathic accuracy in relationship-threatening situations. *Personality and Social Psychology Bulletin, 37*(2), 242-254.

Simpson, J. A., & Papageorgiou, C. (2003). Metacognitive beliefs about rumination in anger. *Cognitive and Behavioral Practice, 10*(1), 91-94.

Simpson, J. A., & Rholes, W. S. (1998). Attachment in adulthood. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment Theory and Close Relationships* (pp. 3-21). New York, London: Guilford Press.

Simpson, J. A., & Rholes, W. S. (2004). Anxious attachment and depressive symptoms: An interpersonal perspective. In W. S. Rholes & J. A. Simpson (Eds.), *Adult Attachment: Theory, Research, and Clinical Implications* (pp. 408-437). New York, London: Guilford Press.

Simpson, J. A., & Rholes, W. S. (2010). Attachment and relationships: Milestones and future directions. *Journal of Social and Personal Relationships, 27*(2), 173-180.

Simpson, J. A., Rholes, W. S., & Nelligan, J. (1992). Support seeking and support giving within couples in an anxiety-provoking situation: The role of attachment styles. *Journal of Personality and Social Psychology, 62*(3), 434-446.

Simpson, J. A., Rholes, W. S., Orina, M., & Grich, J. (2002). Working models of attachment, support giving, and support seeking in a stressful situation. *Personality and Social Psychology Bulletin, 28*, 598-608.

Simpson, J. A., Rholes, W. S., & Phillips, D. (1996). Conflict in close relationships: An attachment perspective. *Journal of Personality and Social Psychology, 71*(5), 899-914.

Smith, R. L., & Rose, A. J. (2011). The "cost of caring" in youths' friendships: Considering associations among social perspective taking, co-rumination, and empathetic distress. *Developmental Psychology, 47*, 1792-1803.

Spasojevic, J., & Alloy, L. B. (2001). Rumination as a common mechanism relating depressive risk factors to depression. *Emotion, 1*(1), 25-37.

Speckens, A. E. M., Ehlers, A., Hackmann, A., Ruths, F. A., & Clark, D. M. (2007). Intrusive memories and rumination in patients with post-traumatic stress disorder: A phenomenological comparison. *Memory, 15*(3), 249-257.

Sprecher, S., & Hendrick, S. S. (2004). Self-Disclosure in Intimate Relationships: Associations With Individual and Relationship Characteristics Over Time. *Journal of Social and Clinical Psychology, 23*(6), 857-877.

Stafford, M., McMunn, A., Zaninotto, P., & Nazroo, J. (2011). Positive and negative exchanges in social relationships as predictors of depression: Evidence from the English Longitudinal Study of Aging. *Journal of Aging and Health, 23*(4), 607-628.

Stanley, S. M., Markman, H. J., & Whitton, S. W. (2002). Communication, conflict and commitment: Insights on the foundations of relationship success from a national survey. *Family Process, 41*(4), 659-675.

Starr, L. R., & Davila, J. (2009). Clarifying co-rumination: Associations with internalizing symptoms and romantic involvement among adolescent girls. *Journal of Adolescence, 32*(1), 19-37.

Sternberg, R. J. (1988). *Construct validation of triangular theory of love. (Unpublished dissertation).* Yale University, Yale.

Stone, L. B., Hankin, B. L., Gibb, B. E., & Abela, J. R. (2011). Co-rumination predicts the onset of depressive disorders during adolescence. *Journal of Abnormal Psychology, 120*(3), 752-757.

Stone, L. B., Uhrlass, D. J., & Gibb, B. E. (2010). Co-rumination and lifetime history of depressive disorders in children. *Journal of Clinical Child and Adolescent Psychology, 39*(4), 597-602.

Sukhodolsky, D. G., Golub, A., & Cromwell, E. N. (2001). Development and validation of the anger rumination scale. *Personality and Individual Differences, 31*(5), 689-700.

Sutherland, K., & Bryant, R. A. (2007). Rumination and overgeneral autobiographical memory. *Behaviour Research and Therapy, 45*(10), 2407-2416.

Takano, K., Sakamoto, S., & Tanno, Y. (2011). Ruminative and reflective forms of self-focus: Their relationships with interpersonal skills and emotional reactivity under interpersonal stress. *Personality and Individual Differences, 51,* 515-520.

Takano, K., & Tanno, Y. (2008). Self-rumination, self-reflection, and depression: Self-rumination counteracts the adaptive effect of self-reflection. *Behaviour Research and Therapy, 47*(3), 260-264.

Tangney, J. P., Wagner, P., & Gramzow, R. (1989). *The Test of Self-conscious Affect (TOSCA)*. Fairfax, V.A.: George Mason University.

Tangney, J. P., Wagner, P., & Gramzow, R. (1992). Proneness to shame, proneness to guilt, and psychopathology. *Journal of Abnormal Psychology, 101*(3), 469-478.

Tashiro, T., & Frazier, P. (2007). The causal effects of emotion on couples' cognition and behavior. *Journal of Counseling Psychology, 54*(4), 409-422.

Teasdale, J. D., & Fogarty, S. J. (1979). Differential effects of induced mood on retrieval of pleasant and unpleasant events from episodic memory. *Journal of Abnormal Psychology, 88*(3), 248-257.

Thase, M. E. (2009). Psychotherapies for depression in adults: A review of recent developments. In H. Herrman, M. Maj & N. Sartorius (Eds.), *Depressive Disorders (3rd ed.).* (pp. 95-131). Chichester, UK: Wiley-Blackwell.

Thayer, J. F., Rossy, L. A., Ruiz-Padial, E., & Johnsen, B. H. (2003). Gender differences in the relationship between emotional regulation and depressive symptoms. *Cognitive Therapy and Research, 27*(3), 349-364.

Thoits, P. A. (1985). Self-labelling processes in mental illness: The role of emotional deviance. *American Journal of Sociology, 92*, 221-249.

Thomsen, D. K. (2006). The association between rumination and negative affect: A review. *Cognition and Emotion, 20*(8), 1216-1235.

Thomsen, D. K., Jørgensen, M. M., Mehlsen, M. Y., & Zachariae, R. (2004). The influence of rumination and defensiveness on negative affect in response to experimental stress. *Scandinavian Journal of Psychology, 45*(3), 253-258.

Thomsen, D. K., Mehlsen, M. Y., Christensen, S., & Zachariae, R. (2003). Rumination--relationship with negative mood and sleep quality. *Personality and Individual Differences, 34*(7), 1293-1301.

Tompkins, T. L., Hockett, A. R., Abraibesh, N., & Witt, J. L. (2011). A closer look at co-rumination: Gender, coping, peer functioning and internalizing/externalizing problems. *Journal of Adolescence, 34*(5), 801-811.

Trapnell, P. D., & Campbell, J. D. (1999). Private self-consciousness and the five-factor model of personality: Distinguishing rumination from reflection. *Journal of Personality and Social Psychology, 76*(2), 284-304.

Treboux, D., Crowell, J. A., & Waters, E. (2004). When "new" meets "old": Configurations of adult attachment representations and their implications for marital functioning. *Developmental Psychology, 40*(2), 295-314.

Trew, J. L., & Alden, L. E. (2009). Predicting anger in social anxiety: The mediating role of rumination. *Behaviour Research and Therapy, 47*(12), 1079-1084.

Treynor, W., Gonzalez, R., & Nolen-Hoeksema, S. (2003). Rumination reconsidered: A psychometric analysis. *Cognitive Therapy and Research, 27*(3), 247-259.

Troisi, A., & D'Argenio, A. (2004). The relationship between anger and depression in a clinical sample of young men: The role of insecure attachment. *Journal of Affective Disorders, 79*(1-3), 269-272.

Tse, M. C., & Cheng, S. (2006). Depression reduces forgiveness selectively as a function of relationship closeness and transgression. *Personality and Individual Differences, 40*(6), 1133-1141.

van der Houwen, K., Stroebe, M., Schut, H., Stroebe, W., & van den Bout, J. (2010). Mediating processes in bereavement: The role of rumination, threatening grief interpretations, and deliberate grief avoidance. *Social Science & Medicine, 71*(9), 1669-1676.

van Randenborgh, A., de Jong-Meyer, R., & Hüffmeier, J. (2010). Rumination fosters indecision in dysphoria. *Journal of Clinical Psychology, 66*(3), 229-248.

Wade, N. G., Vogel, D. L., Liao, K. Y., & Goldman, D. B. (2008). Measuring state-specific rumination: Development of the rumination about an interpersonal offense scale. *Journal of Counseling Psychology, 55*(3), 419-426.

Wagner, P. E., & Tangney, J. P. (1991). *Affective style, aspects of the self,and psychological symptoms. (Unpublished manuscript).* George Mason University, Fairfax, Virginia.

Waller, E. M., & Rose, A. J. (2009). Adjustment trade-offs of co-rumination in mother–adolescent relationships. *Journal of Adolescence*, 487-497.

Ward, A., Lyubomirsky, S., Sousa, L., & Nolen-Hoeksema, S. (2003). Can't quite commit:Ruminaiton and uncertainty. *Personality and Social Psychology Bulletin, 29*, 96-107.

Watkins, E. (2004). Adaptive and maladaptive ruminative self-focus during emotional processing. *Behaviour Research and Therapy, 42*(9), 1037-1052.

Watkins, E., & Baracaia, S. (2001). Why do people ruminate in dysphoric moods? *Personality and Individual Differences, 30*(5), 723-734.

Watkins, E., & Baracaia, S. (2002). Rumination and social problem-solving in depression. *Behaviour Research and Therapy, 40*(10), 1179-1189.

Watkins, E., Moberly, N. J., & Moulds, M. L. (2008). Processing mode causally influences emotional reactivity: Distinct effects of abstract versus concrete construal on emotional response. *Emotion, 8*(3), 364-378.

Watkins, E., & Moulds, M. L. (2005a). Distinct modes of ruminative self-focus: Impact of abstract versus concrete rumination on problem solving in depression. *Emotion, 5*(3), 319-328.

Watkins, E., & Moulds, M. L. (2005b). Positive beliefs about rumination in depression. A replication and extension. *Personality and Individual Differences, 39*(1), 73-82.

Watkins, E., & Moulds, M. L. (2007). Reduced concreteness of rumination in depression: A pilot study. *Personality and Individual Differences, 43*(6), 1386-1395.

Wei, M., Shaffer, P. A., Young, S. K., & Zakalik, R. A. (2005). Adult attachment, shame, depression, and loneliness: The mediation role of basic psychological needs satisfaction. *Journal of Counseling Psychology, 52*(4), 591-601.

Weinstock, L. M., & Whisman, M. A. (2007). Rumination and excessive reassurance-seeking in depression: A cognitive-interpersonal integration. *Cognitive Therapy and Research, 31*(3), 333-342.

Whiffen, V. E., Kallos-Lilly, A. V., & MacDonald, B. J. (2001). Depression and attachment in couples. *Cognitive Therapy and Research, 25*(5), 577-590.

Whisman, M. A. (2001). The association between depression and marital dissatisfaction. In S. R. H. Beach (Ed.), *Marital and Family Processes in Depression: A Scientific Foundation for Clinical Practice* (pp. 3-24). Washington, DC: American Psychological Association.

Williams, C. D. (2008). *Rumination and stress spillover in marriage. (Unpublished dissertation).* State University of New York, Stony Brook.

Williams, C. D., Taylor, T. R., Makambi, K., Harrell, J., Palmer, J. R., Rosenberg, L., & Adams-Campbell, L. L. (2007). CES-D four-factor structure is confirmed, but not invariant, in a large cohort of african american women. *Psychiatry Research, 150*(2), 173-180.

Wolf, B. (1981). *Webster's New Collegiate Dictionary*. Toronto, Canada: Allen & Son.

Wood, J. V., Saltzberg, J. A., Neale, J. M., Stone, A. A., & Rachmiel, T. B. (1990). Self-focused attention, coping responses, and distressed mood in everyday life. *Journal of Personality and Social Psychology, 58*(6), 1027-1036.

Appendix A

Recruitment Poster, Study 1

Participants Wanted!

Participants are required for a psychology study. Your participation will involve completing two pencil and paper questionnaire booklets. Booklet one will take approximately 90 minutes and booklet two, which you will be asked to complete four months later, will take approximately 60 minutes.

You will receive $25.00 of gift vouchers for your participation.

People respond and cope with adverse life experiences in a variety of ways. The questions in the booklet ask about the typically response or coping strategy you use when your mood is low, when you are faced with an unpleasant or stressful event, are worried about something, or feel frustrated. Some of questions in the booklet also ask about your mood.

Please contact the research assistants for this study: Felicity Daly or Johannah Betman
Telephone 3642987 extension 3086.

Email: Felicity: fmd15@student.canterbury.ac.nz
Johannah: jeb95@student.canterbury.ac.nz

Appendix B

Information Sheet, Study 1

The Rumination Project I

Information Sheet

University of Canterbury – Department of Psychology

We are interested in the relationship between the way people think about themselves and their emotions. This study is being conducted by Janet Carter, Kumari Fernando, Derek Roger, Felicity Daly, and Johannah Betman

You are invited to participate in this study. Your participation will involve completing two self-report questionnaire booklets. The first booklet will take approximately 90 minutes to complete and the second booklet, which is completed four months later, will take approximately 60 minutes. People respond and cope with adverse life experiences in a variety of ways. The questions in the booklets ask about the typically response or coping strategy you use when your mood is low, when you are faced with an unpleasant or stressful event, are worried about something, or feel frustrated. Some of questions in the booklets also ask about your mood.

Participants in this study will be given gift vouchers worth a total of $25.00. Participants will receive a $5.00 gift voucher after completion of booklet one and a $20.00 gift voucher after the completion of booklet two.

You have the right to withdraw your participation at any time. You have the right to withdraw any information provided, until your questionnaire has been added to the others that have been collected. Because it is anonymous, it cannot be retrieved after that.

The results of the project may be published, but you can be assured of the complete confidentiality of data gathered in this investigation: the identity of participants will not be made public. To ensure anonymity and confidentiality, any information that is gathered from participants (e.g. booklets) will not have any identifying information on it and all

information will be stored in a locked cabinet. You are welcome to request a copy of our published results when these are available. Please discuss this with the researcher.

We do not foresee any risks in participation. Please ask the researcher if you have any questions before participating If you have concerns about your psychological wellbeing (for example, marked stress, depression or anxiety) after completing the questionnaires in this study you have a number of options. You can make an appointment to see your GP or a GP or counsellor at the University Student Health and Counselling Services. You can also contact Dr Janet Carter to discuss other possible appropriate options.

By completing the questionnaire it will be understood that you have consented to participate in the project and that you consent to publication of the results of the project with the understanding that anonymity will be preserved.

The research assistant in this study will ask you if you consent to your name being placed in a separate database so that you can be contacted in the future about participation in other studies. If you agree to being contacted the research assistant will ask you to sign a consent to contact form. Consenting to be contacted does not mean that you are consenting to participate in another study. It is your choice whether or not you choose to participate in another study.

Please contact a researcher if you have queries or concerns about this study.
Primary researcher:
Dr. Janet Carter janet.carter@canterbury.ac.nz, phone: 364 2987 extension 8090

Research assistants: phone: 364 2987, extension 3086
Ms Felicity Daly fmd15@student.canterbury.ac.nz
Johannah Betman jeb95@student.canterbury.ac.nz

Appendix C

Consent Form, Study 1

Consent form

The Rumination Project I

I have read and understood the description of the above named project. On this basis I agree to participate as a subject in the project, and I consent to publication of the results of the project with the understanding that anonymity will be preserved.

I understand also that at any time I may withdraw from the project, including withdrawal of any information I have provided.

I note that the project has been reviewed ***and approved*** by the university of Canterbury human ethics committee

Name (please print):…….

Signature:…….

Date:……

Appendix D

Debriefing Sheet, Study 1

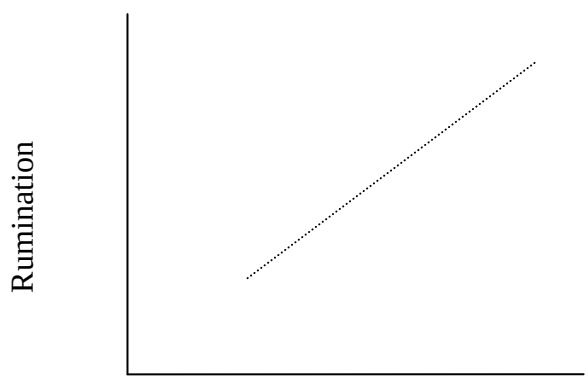
The Rumination Project I

Thank you for taking part in this study.

The main purpose of this study was to look at the association between rumination, depression and anxiety. A further aim was to look at the association between cognitive and personality constructs, **attachment** and rumination.

Rumination refers to a passive focus on mood and symptoms (e.g., asking yourself "why do I feel this way", analysing your feelings and "dwelling" on these). Research has found that rumination lowers mood and is implicated in depression and possibly anxiety. Depression is a serious disorder which will be the second leading cause of global disability by 2020. We are looking at the relationship between rumination and a number of other constructs, including the way people think about themselves and their goals, the way they handle their thoughts (e.g., whether people try to suppress their thoughts) and their personality.

To do this, we have asked participants to complete a number of different measures of rumination, cognitive and emotional symptoms**.** We will then correlate the measures together. We think that rumination will be related to a number of other psychological constructs that we have measured. For example, we think that rumination will be associated with more severe depression and possibly anxiety too.



Here, you can see that the more people ruminate, the more severe their depression is.

Rumination is associated with a greater chance of becoming depressed and the depression being severe. The real world implications are that by finding out more about rumination, we will be able to better understand the factors that cause and maintain depression and also develop better psychological treatments.

If you have concerns that you may be experiencing depression, it is important to obtain help. Please contact the Student Health Centre at the University of Canterbury (364 2402). If you have any questions about this study, please ask the research assistant or contact Dr. Janet Carter (ext. 8090) or janet.carter@canterbury.ac.nz.

Thank you for your participation!

Appendix E

Tests of Normal Distribution, Study 1

Test of Normal Distribution with Original Data

	Kolmogorov-Smirnov(a)			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Depression	.136	187	.000	.904	187	.000
Rumination	.081	187	.004	.972	187	.001
Shame	.096	187	.000	.972	187	.001
Guilt	.107	187	.000	.956	187	.000
Anger	.196	187	.000	.769	187	.000
Avoidant Attachment	.066	187	.045	.988	187	.108
Anxious Attachment	.072	187	.021	.986	187	.062
Insecure Attachment (Total score)	.050	187	.200(*)	.992	187	.369

* This is a lower bound of the true significance.

a Lilliefors Significance Correction

Test of Normal Distribution with Transformed Data

	Kolmogorov-Smirnov(a)			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Depression (square root)	.084	187	.003	.984	187	.028
Rumination (natural log)	.050	158	.200(*)	.986	158	.112
Shame (square root)	.054	187	.200(*)	.991	187	.326
Guilt (square root)	.089	187	.001	.985	187	.048

* This is a lower bound of the true significance.

a Lilliefors Significance Correction

Tests of Normal Distribution for Anger

	Kolmogorov-Smirnov(a)			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Anger	.196	187	.000	.769	187	.000
Anger (log)	.318	187	.000	.750	187	.000
Anger (square root)	.138	187	.000	.946	187	.000
Anger (Square)	.345	187	.000	.411	187	.000
Anger (inverse)	.212	187	.000	.823	187	.000
Anger (reflect square root)	.213	187	.000	.861	187	.000
Anger (reflect inverse)	.509	187	.000	.163	187	.000
Anger (reflect log)	.253	187	.000	.805	187	.000

a Lilliefors Significance Correction

Tests of Normal Distribution for Depressed Mood

	Kolmogorov-Smirnov(a)			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Depressed Mood	.163	187	.000	.852	187	.000
Depressed Mood (log)	.122	187	.000	.941	187	.000
Depressed Mood (square root)	.121	187	.000	.951	187	.000
Depressed Mood (square)	.296	187	.000	.572	187	.000
Depressed Mood (inverse)	210	187	.000	.792	187	.000
Depressed Mood (reflect square root)	.245	187	.000	.782	187	.000
Depressed Mood (reflect inverse)	.224	187	.000	.918	187	.000
Depressed Mood (reflect log)	.280	187	.000	.786	187	.000

a Lilliefors Significance Correction

Appendix F

Recruitment Poster, Study 2 and 3

Participants Wanted!

The Thought and Emotion Project II

Participants are required for a psychology study.

Are you currently involved in a romantic relationship? Or been involved in a romantic relationship in the past? If you are/have then we need you!

Your participation will involve completing an online questionnaire and coming into the research office to complete a small task. Participation will take approximately 40 minutes in total.

You will receive $10.00 of gift vouchers for your participation.

People respond and cope with adverse life experiences in a variety of ways. This study looks at responses or coping strategies used when ones mood low, when they are faced with an unpleasant or stressful event, are worried about something, or feel frustrated.

Please contact Johannah Betman if you are interested in participating or would like to know more

Telephone: 3642987 extension 3086.

Email: jeb95@student.canterbury.ac.nz

This research has been approved by the University of Canterbury Ethics Committee

Participants Wanted jeb95@student.canterbury.ac.nz
Participants Wanted jeb95@student.canterbury.ac.nz
Participants Wanted jeb95@student.canterbury.ac.nz
Participants Wanted jeb95@student.canterbury.ac.nz
Participants Wanted jeb95@student.canterbury.ac.nz
Participants Wanted jeb95@student.canterbury.ac.nz
Participants Wanted jeb95@student.canterbury.ac.nz
Participants Wanted jeb95@student.canterbury.ac.nz
Participants Wanted jeb95@student.canterbury.ac.nz
Participants Wanted jeb95@student.canterbury.ac.nz

Appendix G

Information Sheet, Study 2 and 3

The Thought and Emotion Project II

University of Canterbury – Department of Psychology

Information Sheet

You are invited to participate in the study "The Thought and Emotion Project". This study is interested understanding mood and individuals relationships.

Your participation will involve completing and online questionnaire booklet, then coming into the research office to complete a few more questionnaires and participate in a small thinking task. Completion of the online questionnaires will take approximately 30 minutes. Completion of the questionnaires and task at the research office will take approximately 25 minutes. People respond and cope with adverse life experiences in a variety of ways. The questionnaires ask about the typically response or coping strategy you use when your mood is low, when you are faced with an unpleasant or stressful event, are worried about something, or feel frustrated. Some of questions in the booklets also ask about your mood, and feelings regarding your current or most recent romantic relationship.

Participants in this study participating via the participant pool will receive course credit for their participation. Participants who are not participating via the participant pool will be given either Westfield gift vouchers or MTA petrol vouchers worth a total of $10.00.

You have the right to withdraw your participation at any time. You have the right to withdraw any information provided, until your questionnaire has been added to the others that have been collected. Because it is confidential, it cannot be retrieved after that.

The results of the project may be published, but you can be assured of the complete confidentiality of data gathered in this investigation: the identity of participants will not be made public without their consent. To ensure confidentiality, any information that is gathered from participants (e.g. questionnaires) will not have any identifying information on it and all information will be stored in a locked cabinet. For those participants whose current romantic partner is also participating please note that a code will be added to your questionnaire so that information can be identified as belonging to a particular pair. This code is needed allow the researcher to conduct some couple analyses. You are welcome to request a copy of our published results when these are available. Please discuss this with me.

I do not foresee any risks in participation. Please ask if you have any questions before participating. If you have concerns about your psychological wellbeing (for example, marked stress, depression or anxiety) after completing the questionnaires/and or task in this study you have a number of options. You can make an appointment to see your GP, or a GP or counsellor at the University Student Health and Counselling Services (phone number: 364 2402). You can also contact Dr Janet Carter to discuss other possible appropriate options.

By completing the questionnaire it will be understood that you have consented to participate in the project and that you consent to publication of the results of the project with the understanding that confidentiality will be preserved.

This project is being carried out by Johannah Betman as part of her PhD research, under the supervision of Dr Janet Carter. Please contact me if you have queries or concerns about this study.

Johannah Betman - Telephone: 3642987 extension 3086.

Email: jeb95@student.canterbury.ac.nz

You may also contact my supervisor:

Dr. Janet Carter – Telephone: 364 2987 extension 8090

Email: janet.carter@canterbury.ac.nz

This research has been reviewed and approved by the University of Canterbury Ethics Committee

Appendix H

Consent Form, Study 2 and 3

Consent form

The Thought and Emotion Project II

I have read and understood the description of the above named project. On this basis I agree to participate as a subject in the project, and I consent to publication of the results of the project with the understanding that anonymity will be preserved.

I understand also that at any time I may withdraw from the project, including withdrawal of any information I have provided.

I note that the project has been reviewed ***and approved*** by the university of Canterbury human ethics committee

Name (please print):…….

Signature:…….

Date:……

Appendix I

Debrief Sheet, Study 2 and 3

Debriefing Sheet

The Thought and Emotion Project II

Thank you for taking part in this study.

The main purpose of this study was to empirically investigate the relationship between rumination and attachment, and their subsequent impact on interpersonal factors and negative emotions in the context of romantic relationships.

Rumination refers to a passive focus on mood and symptoms (e.g., asking yourself "why do I feel this way", analysing your feelings and "dwelling" on these). Research has found that rumination lowers mood and is implicated in depression and possibly anxiety. Depression is a serious disorder which will be the second leading cause of global disability by 2020. Attachment, on the other hand, is the initial bond one forms with their primary caregiver. This bond can be either secure or insecure, and is thought to impact on the development of emotion regulation skills and the quality of an individuals subsequent relationships. I am interested in these two factors and their wider impact. Specifically, their impact on an individuals experience of negative emotion, and relationship factors such as intimacy and satisfaction.

To investigate this area, I have asked participants to complete a number of different measures of rumination and emotion symptoms as well as interpersonal factors**.** I have also manipulated rumination here. Half of the participants in this study have been asked to really think about a particular event while half were given a distraction task. Furthermore, half of the participants were asked to think of a relationship disagreement or negative event, while half were asked to think of a neutral event. Next, I will correlate and analyse all measures together. I think that rumination will be related to a number of other

psychological constructs that I have measured. For example, I think that rumination will be associated with greater levels of negative emotion and negative interpersonal factors.

If you have any questions, queries or concerns regarding this study please email jeb95@student.canterbury.ac.nz or call 3642987 extension 3086.

You may also contact my supervisor:
Dr. Janet Carter – janet.carter@canterbury.ac.nz, 364 2987 extension 8090

Would you be interested in having your name placed in a separate database so that you can be contacted in the future about participation in other similar studies? If you would, let the researcher know you are interested. If you agree to being contacted in the future, you will be asked to sign a consent to contact form. **Consenting to be contacted does not mean that you are consenting to participate in another study. It is your choice whether or not you choose to participate in any future study.**

This research has been reviewed and approved by the University of Canterbury Ethics Committee

Appendix J

Tests of Normal Distribution, Study 2

Test of Normal Distribution for Whole Sample (N=238)

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
AAQ Anxious Att	.064	238	.019	.985	238	.013
AAQ Anxious Att- SQRT	.042	238	.200*	.994	238	.438
AAQ Avoidant Att	.075	238	.002	.981	238	.003
AAQ Avoidant Att - SQRT	.055	238	.078	.992	238	.262
RRQ Rumination	.093	238	.000	.977	238	.001
RRQ Rumination -SQ	.059	238	.045	.984	238	.010
CESD Low Mood	.135	238	.000	.905	238	.000
CESD Low Mood SQRT	.072	238	.005	.989	238	.062
Mood T1	.159	238	.000	.912	238	.000
Mood 2T	.111	238	.000	.963	238	.000
BMIS negative T1	.129	238	.000	.921	238	.000
BMIS negative T2	.114	238	.000	.942	238	.000
BMIS negative T1 LG	.063	238	.021	.985	238	.011
BMIS negative T2 LG	.075	238	.002	.980	238	.002
QRI Conflict	.110	238	.000	.934	238	.000
QRI Conflict Inverse	.070	238	.006	.977	238	.001
QRI Support	.148	238	.000	.870	238	.000
QRI Depth	.189	238	.000	.865	238	.000

Note: a Lilliefors Significance Correction, * = This is a lower bound of the true significance, T1=Time 1, T2 = Time 2

Test of Normal Distribution for Sample when Singles Excluded (N=197)

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
AAQ Anxious Att	.078	197	.006	.980	197	.007
Anx Anxious Att SQRT	.046	197	.200*	.992	197	.371
AAQ Avoidant Att	.080	197	.004	.980	197	.006
AAQ Avoidant Att SQRT	.054	197	.200*	.993	197	.454
RRQ Rumination	.092	197	.000	.978	197	.004
RRQ Rumination -SQ	.063	197	.052	.982	197	.011
CESD Low Mood	.144	197	.000	.897	197	.000
CESD Low Mood SQRT	.080	197	.004	.987	197	.068
PRQC T1	.172	197	.000	.856	197	.000
PRQC T2	.157	197	.000	.838	197	.000
IOS T1	.169	194	.000	.922	194	.000
IOS T2	.170	195	.000	.928	195	.000
RES negative T1	.194	196	.000	.799	196	.000
RES negative T2	.180	197	.000	.842	197	.000
QRI Conflict	.106	197	.000	.946	197	.000
QRI Conflict Inverse	.086	197	.001	.972	197	.001
QRI Support	.156	197	.000	.866	197	.000
QRI Depth	.194	197	.000	.852	197	.000

Note: a Lilliefors Significance Correction, * = This is a lower bound of the true significance, T1=Time 1, T2 = Time 2

Appendix K

Figures displaying Effect of Response Style and Event Type when Attachment Style is included as a Fixed Factor in the Analysis

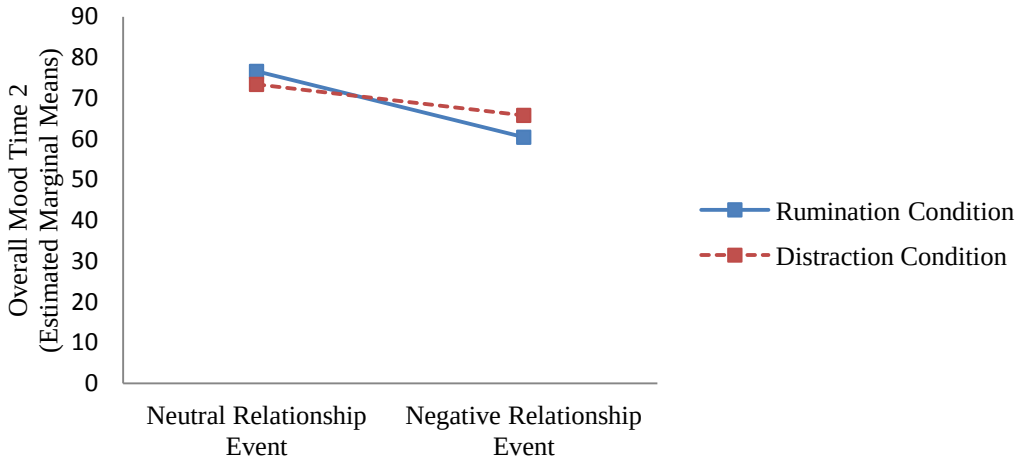


Figure 1. Effect of response style and type of relationship event on overall mood time 2 when anxious-ambivalent attachment is included in the model (controlling for overall mood time 1)

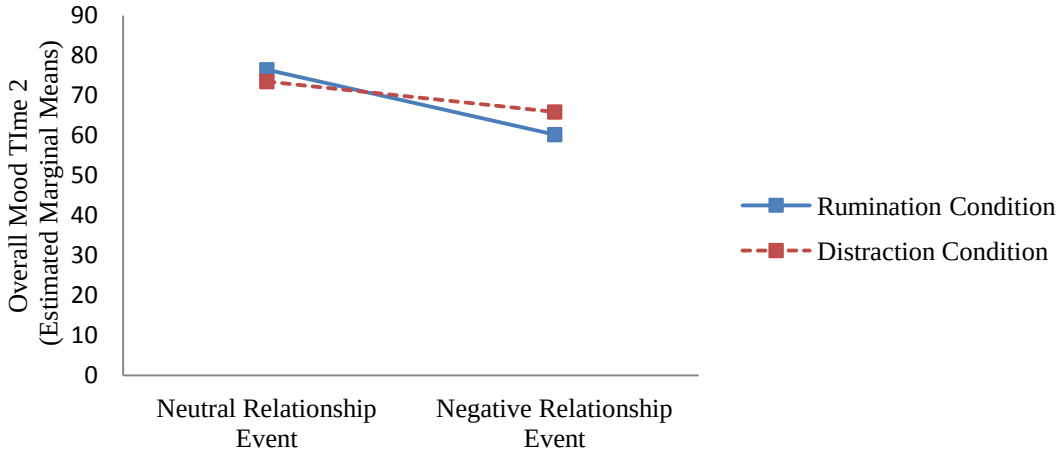


Figure 2. Effect of response style and type of relationship event on overall mood time 2 when avoidant attachment is included in the model (controlling for overall mood time 1)

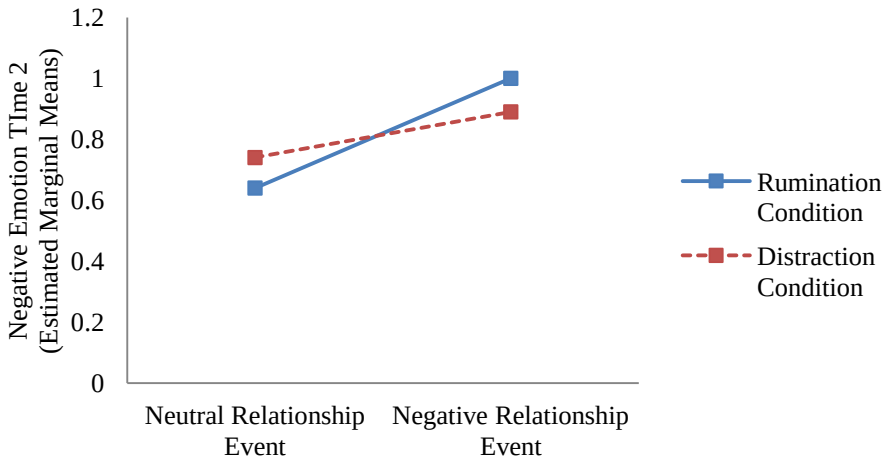


Figure 3. Effect of response style and type of relationship event on negative emotion time 2 when anxious-ambivalent attachment is included in the model (controlling for overall mood time 1)

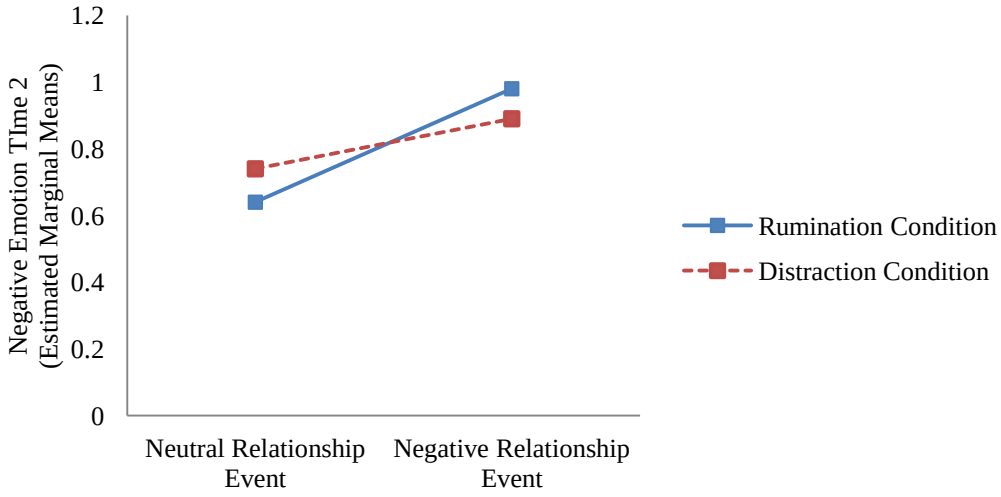


Figure 4. Effect of response style and type of relationship event on negative emotion time 2 when avoidant attachment is included in the model (controlling for overall mood time 1)

Appendix L

Tests of Normal Distribution, Study 3

Test of Normal Distribution for Student Couples Sample, Males (N= 38)

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
RRQ Rumination	.091	38	.100	.972	38	.076
CESD Low Mood	.138	80	.001	.863	80	.001
CESD Low Mood SQRT	.114	38	.200	.962	38	.224
PRQC	.118	38	.011	.909	38	.000
PRQC SQ	.143	38	.048	.938	38	.035
BMIS	.163	38	.000	.842	38	.000
BMIS LG	.110	38	.200	.965	38	.273
RES	.199	38	.000	.762	38	.000
RES LG	.171	38	.007	.885	38	.001
QRI Conflict	.089	38	.200	.978	38	.646
QRI Support	.133	38	.000	.924	38	.000
QRI Support Inverse	.159	38	.016	.875	38	.001
QRI Depth	.249	38	.000	.812	38	.000
QRI Depth Inverse	.131	38	.098	.933	38	.025

Note: a Lilliefors Significance Correction, * = This is a lower bound of the true significance, T1=Time 1, T2 = Time 2

Test of Normal Distribution for Student Couples Sample, Females (N= 38)

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
RRQ Rumination	.079	38	.200	.972	38	.463
CESD Low Mood	.136	80	.001	.854	80	.000
CESD Low Mood SQRT	.209	38	.072	.930	38	.020
PRQC	.199	38	.001	.890	38	.001
PRQC SQ	.143	38	.048	.938	38	.035
BMIS	.163	38	.000	.842	38	.000
BMIS LG	.140	38	.058	.912	38	.006
RES	.199	38	.000	.762	38	.000
RES LG	.166	38	.009	.909	38	.005
QRI Conflict	.109	38	.200	.942	38	.049
QRI Support	.121	38	.000	.932	38	.000
QRI Support Inverse	.280	38	.000	.784	38	.000
QRI Depth	.235	38	.000	.792	38	.000
QRI Depth Inverse	.172	38	.005	.908	38	.004

Note: a Lilliefors Significance Correction, * = This is a lower bound of the true significance, T1=Time 1, T2 = Time 2

Appendix M

Recruitment Poster, Studies 4 and 5

Couples Wanted!

The Couples Thought and Emotion Study

Participants are required for a psychology study.

Are you currently involved in a heterosexual romantic relationship? If you are, and you and your partner are 18 years or older, and in a relationship that is more than two months in duration then we need you!

Your participation will involve you and your partner separately completing an online questionnaire and coming into the research office to participate in four discussions on positive and negative relationship events. Each discussion will last five minutes. Participation will take approximately 70 minutes in total.

For participating each couple will receive a $15 grocery voucher as a thank you.

People respond and cope with adverse life experiences in a variety of ways. This study looks at communication styles, responses or coping strategies used when ones mood is low, when they are faced with an unpleasant or stressful event, are worried about something, or feel frustrated.

Please contact Johannah Betman if you are interested in participating or would like to know more

Telephone: 03 366 7001 extension 3086.

Email: jeb95@uclive.ac.nz

This research has received ethical approval from the Upper South B Regional Ethics Committee, ethics reference number URB10/08/030.

Couples Wanted jeb95@uclive.ac.nz	Couples Wanted jeb95@uclive.ac.nz	Couples Wanted jeb95@uclive.ac.nz	Couples Wanted jeb95@uclive.ac.nz	Couples Wanted jeb95@uclive.ac.nz	Couples Wanted jeb95@uclive.ac.nz	Couples Wanted jeb95@uclive.ac.nz	Couples Wanted jeb95@uclive.ac.nz	Couples Wanted jeb95@uclive.ac.nz	Couples Wanted jeb95@uclive.ac.nz

Appendix N

Information Sheet, Study 4 and 5

College of Science

Department of Psychology

The Couples Thought and Emotion Study

Information Sheet

Introduction

You and your partner are invited to participate in the study "The Couples Thought and Emotion Study". People respond and cope with life experiences in a variety of ways, we are interested in the ways and the approach couples take to discussing relationship events and the effect this has on each of them. In particular we are interested in the communication styles of Co-rumination and Co-reflection. Co-rumination involves extensively discussing events with ones partner, while Co-reflection involves a mutual contemplation on the events that have occurred and reflection on the knowledge one has gained. The aim of this study is to compare the effect of these two discussion styles on levels of emotion and feelings of relationship satisfaction. This study is being conducted as part of PhD research by Johannah Betman at the University of Canterbury. It is being supervised by Janet Carter, and Kumari Fernando.

Your participation will involve you and your partner each completing an online questionnaire booklet from your home. The researchers will let you know how to do this. These questionnaires are to be completed individually (without your partner present), and you are asked to please not discuss your responses with your partner. If you do not have a computer let the researcher know and a copy of the questionnaire can be posted to you and your partner. A reply prepaid envelope will be included for you to send it back. The questionnaires ask about the typical responses or coping strategy you use when your mood is low, when you are faced with an unpleasant or stressful event, are worried about something, or feel frustrated. Some of the questionnaires also ask about your mood, and feelings regarding your current romantic relationship.

Once the questionnaire booklets have been completed you and your partner will be invited to come into the research office (at the University of Canterbury) to separately complete a few more questionnaires and participate together in four five-minute discussions on current negative and positive events in your relationship. You and your partner will individually be asked to write down some negative and some positive events that have occurred in your relationship over the past two weeks that you both would feel comfortable talking about during this study.

Your participation in this study is completely voluntary (your choice). If you agree to take part you may withdraw at any time, for any reason.

More about this study

What are the aims of this study? We are interested in the way different styles of communicating with ones romantic partner may affect the emotions one feels, as well as their feelings of relationship satisfaction. It is the aim of this study to investigate the two communication styles of co-rumination and co-reflection to determine how they influence levels of negative emotion, feelings of closeness to ones partner, and feelings of support. Given the frequent occurrence of both positive and negative events over the course of a romantic relationship, understanding how different communication styles contribute to ones levels of negative emotion is an important step in shedding light on how couples can increase their levels of relationship satisfaction.

Who can participate in this study? If you are a heterosexual couple who have been together for two months or longer, and are both 18 years or older you may participate in this study. *To be eligible for inclusion in this study both you and your partner must agree to participate*. This is because the focus of this study is on the couple relationship. If one member of a couple does not wish to take part then that couple will not be included in the study.

How will participants be selected for this study and who will select them? If you meet the inclusion criteria discussed above, then you responded to advertised material inviting participation in the study. Once couples have responded to advertising, we will make every effort to see them within 4 weeks, or sooner.

How many participants will be involved? We hope to study 50 couples (100 people).

Where will the study be held? This study will be held in the Psychology Department at the University of Canterbury.

What is the time span for the study? You will complete the online questionnaire and then come into the Psychology Department one week later for the discussion section of the study.

What will happen during the study? If you and your partner are interested in this study, the researcher will explain the study in more detail and answer any questions you may have. If after this you *both would like to participate*, the researcher will obtain your consent to participate in the study. Please note that this is a research study and that the research is unable to provide counselling. If you feel that you and your partner would like counselling, the researcher will be able to advise you about agencies that are available in Christchurch.

This study has two parts. You and your partner's participation in the first part of this study will involve you each (separately) completing an online questionnaire booklet. The questions in this booklet ask about your mood, your feelings regarding your current romantic relationship, and your typical coping strategies. This will take approximately 20 minutes. The second part involves you and your partner coming into the research office at the University of Canterbury. Here you will each be asked to individually (separately) complete a few more questionnaires and list several current events you would like to talk about with your partner. The reason we ask for these events is because we want you to discuss things that are important to you in your relationship but also things you are comfortable discussing. You will then come together with your partner and select two

negative events and two positive events to discuss. Each event will be discussed for five minutes. The order in which these events are discussed will be randomly assigned. With your permission discussions will be videotaped. This is to allow the content of the discussions to be coded for level of co-rumination and co-reflection. You have the option of stopping the taping or having the tapes destroyed at any time. Between each discussion you may take a break before moving onto the next discussion. When you both indicate to the researcher that you are ready the next discussion will begin. This last part of the study will take approximately 50 minutes.

You will be offered a parking coupon for your visit to the Psychology Department.
There is no obligation for you to take part in this study. You and your partner may withdraw at any time.

Benefits risks and safety

What are the risks of participation? There may be some discomfort associated with talking about personal issues with your partner and having these discussions recorded. We will take all precautions to maintain confidentiality. All forms, video recordings, and data collected will be marked with numbers only, not names. All forms and video recordings will be kept in a locked cabinet in a locked office in the Psychology department. No names will be used when the results of this study are published.

This is a research study looking at the role of communication style when discussing an event. It is not able to provide counselling. Please ask if you have any questions about this before participating. If you or your partner have concerns about your psychological wellbeing (for example, marked stress, depression or anxiety) after completing the questionnaires/and or discussion task you have a number of options. You can make an appointment for yourself to see your GP. You could phone Lifeline, a free 24 hour telephone counselling service. Their phone number is 0800543354. Or you could contact Relationship Services (New Zealand). Relationship Services provides free counselling nationwide (up to six sessions) through the Family Court which authorises and funds the counselling to help couples resolve issues before they get to the point of separation or divorce. If you contact Relationship Services they can answer any questions you may have about this counselling and complete the Family Court paper work for you. Relationship Services can be contacted at 03 366 8804 or by visiting their website www.relate.org.nz. Office hours are 8.30am to 8.30pm Monday, Tuesday, Thursday, and 8.30am to 5.30pm Wednesday and Friday. Alternatively you could contact the Family Court directly to talk about this counselling and receive a list of available counsellors in your area. Their number is 03 962 4000.

You can also contact Dr Janet Carter to discuss other possible appropriate options.
Telephone: 03 364 2987 extension 8090 or Email: janet.carter@canterbury.ac.nz
What are the benefits of participation? Your participation will contribute to the research literature on romantic relationships by helping to clarify the role of different communication styles when events are discussed. Given the frequent occurrence of both positive and negative events over the course of a romantic relationship understanding what factors contribute to the increase or decrease of negative emotion is essential for happier couple relations.

Furthermore, as a thank you for your participation each couple will receive a $15 grocery voucher.

Participation

- Your participation in this study is entirely voluntary (your choice).
- If you agree to take part, you are free to withdraw from this study at any time, for any reason.
- You do not have to answer all the questions and you may stop the discussions with your partner at any time.
- You may have a friend, family or whanau support to help you understand the risk and/or benefits of this study and any other explanations you require.
- If you have any queries or concerns about your rights as a participant in this research study you can contact an independent health and disability advocate. This is a free service provided in the Health and Disability Commissioner Act. Telephone (NZ wide) 0800 555 050; Free fax (NZ wide) 0800 2787 7678; Email advocacy@hdc.org.nz.

Compensation

In the unlikely event of a physical injury as a result of your participation in this study, you may be covered by ACC under the Injury Prevention, Rehabilitation and Compensation Act. ACC cover is not automatic and your case will need to be assessed by ACC according to the provisions of the 2002 Injury Prevention Rehabilitation and Compensation Act. If your claim is accepted by ACC, you still might not get any compensation. This depends on a number of factors such as whether you are an earner or non-earner. ACC usually provides only partial reimbursement of costs and expenses and there may be no lump sum compensation payable. There is no cover for mental injury unless it is a result of physical injury. If you have ACC cover, generally this will affect your right to sue the investigators.

If you have any questions about ACC, contact your nearest ACC office or the investigator.

Confidentiality

No material that could personally identify you will be used in any reports on this study. To ensure confidentiality, information that is gathered will not have any names on it, instead all information (including video recordings) will have an ID number. This ID number is needed so that information can be identified as belonging to a particular pair (each couple will be given the same ID number with ‘f’ or ‘m’ added to identify the participant as male or female, for example, 01m and 01f). This code is needed to allow the researcher to conduct couples analysis. The data from this study and video recordings will be available only to the study investigators (no one else will have access). All data and video recordings will be stored in a locked file in a locked room. By law health data must be stored for 10 years. After this time all data and video recordings will be destroyed. You have the right to withdraw any information provided at any time. You may stop your discussions with your partner at any time.

Results

How can I get results of this research? When this study is over you can have a summary of the key results. If you would like this please let the researcher know. Please note there will be a significant delay between the information you provide now and receiving the results. Detailed results will be published in international scientific journals.

Where can I get more information about the study? This project is being carried out by Johannah Betman as part of her PhD research, under the supervision of Dr Janet Carter. Johannah Betman (lead researcher) may be contacted by telephone, email, or by letter: Johannah Betman- Thought and Emotion Study, Psychology Department, Private Bag 4800, University of Canterbury, Christchurch. Email: jeb95@uclive.ac.nz Telephone; 03 366 7001 ext 3086.

This study has received ethical approval from the Upper South B Regional Ethics Committee, ethics reference number URB10/08/030.

Please feel free to contact the researcher if you have any questions about this study.

Appendix O

Consent Form, Study 4 and 5

College of Science

Department of Psychology

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

The Couples Thought and Emotion Study

I have read and I understand the information sheet dated October 2010 for volunteers taking part in this study.
I have had the opportunity to discuss this study, and to use whanau support or a friend to help me ask questions and understand the study.
I understand that taking part in this study is voluntary (my choice) and that I may withdraw from the study at any time.
I understand that my participation in this study is confidential and that no material which could identify me will be used in any report on this study.
I understand the compensation provisions for this study.
I have had time to consider whether to take part.
I know whom to contact if I have any questions about this study.
I consent to my discussion with my partner being video recorded ..... YES / NO
I understand that this video recording will be disposed of in a secure and confidential manner when this study ends.
I wish to receive a written summary of the results of this study. ..... YES / NO
IF YES postal address or
email…….
I understand there will be a significant delay between the information I provide and receiving the results.

I _____ (print full name) hereby consent to take part in this study.

Signature: _____ Date: _____

Researchers: Johannah Betman, Dr Janet Carter, Dr Kumari Fernando

Project explained by: __Johannah Betman __ Role: ___Lead researcher____

Signature_____ Date_____

Appendix P

Tests of Normal Distribution, Study 4 and 5

Tests of Normality for Community Sample, Males

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
RRQ_Ruminaiton_m	.099	53	.200*	.986	53	.770
CESD_m	.187	53	.000	.930	53	.004
CESD_SQRT_m	.123	53	.043	.979	53	.491
PRQC_m	.142	53	.010	.881	53	.000
PRQC_SQ_m	.111	53	.100	.920	53	.002
QRI_Support_m	.194	53	.000	.890	53	.000
QRI_Suport_Log10ref_m	.167	53	.001	.936	53	.007
QRI_Conflict_m	.080	53	.200*	.976	53	.377
QRI_Conflict_SQRT_m	.068	53	.200*	.987	53	.837
QRI_Depth_m	.240	53	.000	.839	53	.000
QRI_Depth_inv_ref_m	.178	53	.000	.898	53	.000
Self_Disclosure_m	.118	52	.069	.965	52	.123
Self_Disclosure _SQ_m	.083	52	.200*	.981	52	.551
Co_rumination_m	.088	53	.200*	.982	53	.592

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Tests of Normality for Community Sample, Females

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
RRQ_Ruminaiton	.101	53	.200*	.961	53	.079
CESD	.130	53	.025	.953	53	.038
CESD_SQRT	.089	53	.200*	.985	53	.761
PRQC	.205	53	.000	.850	53	.000
PRQC_SQ	.189	53	.000	.887	53	.000
QRI_Support	.147	53	.006	.900	53	.000
QRI_Support_log10_ref	.129	53	.027	.937	53	.008
QRI_Conflict	.126	53	.035	.950	53	.027
QRI_Conflict_SQRT	.108	53	.182	.967	53	.157
QRI_Depth	.220	53	.000	.794	53	.000
QRI_Depth_inv_ref	.197	53	.000	.919	53	.002
Self_Disclosure	.139	52	.014	.940	52	.011
Self_Disclosure_SQ	.103	52	.200*	.963	52	.105
Co_Rumination	.070	53	.200*	.986	53	.766

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Appendix Q
Design of the Couples Thought and Emotion Study, Studies 4 and 5

Study 4
Base-Line Survey
Component for Study 5

Complete online questionnaire that ask about typical levels of emotion, interpersonal feelings, rumination, and co-rumination

Do this 1 week before come in for next stage

Experimental Component for Study 5

Baseline measure of current emotions

Problem generation questionnaire (Appendix R)

5 minute warm up discussion

A	B
Co-ruminate on negative event	**Co-reflect on negative event**
C	D
Co-ruminate on positive event	**Co-reflect on positive event**

3 minute discussion of the things they enjoy doing together

- 4 x 5min discussions
- Videoed for coding levels of rumination and reflection (Appendix T)
- Order of discussions is randomised for each couple
- Brief ratings of emotion, closeness, and levels of support are made before and after each discussion (Appendix S)

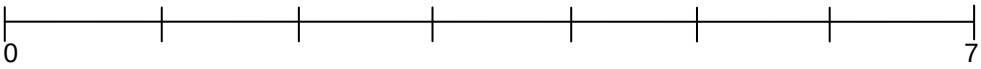
Appendix R

Problem Generation Questionnaire, Study 5

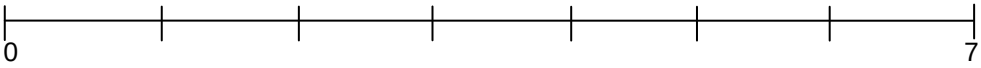
You are now going to be asked to think of and list several positive and negative relationship related events. Two negative events and two positive events will be selected from your list and your partners list for you to discuss. Each discussion will last five minutes and be videotaped. Please only note those events you are happy to discuss.

1. Please think about your current romantic partner. Think about and list three relationship related events from the last two weeks that made you feel really sad, upset, or negative. For each event listed, please rate the importance of this event, the distress caused by this event for you, and the amount of time you have spent thinking about this event since it occurred. Do this using the following scales

not important at all very important

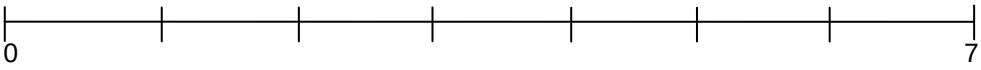


not distressing at all very distressing



not thought about it at all

thought about it a great deal

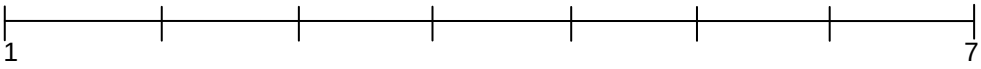


Some events that you may want to consider are: an argument, a disappointing night out together, or a stressful event

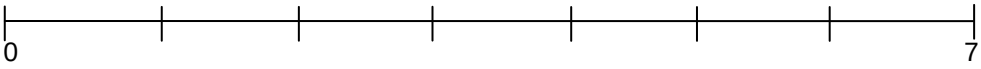
	Importance	Distress Level	Time spent thinking about it
Event A ……..	☐	☐	☐
Event B ……..	☐	☐	☐
Event C ……..	☐	☐	☐

2. Please think about your **current** romantic partner. Think about and list three relationship related events **from the last two weeks** that made you feel really **happy, cheerful,** or **positive**. For each event listed, please rate the importance of this event, the distress caused by this event for you, and the amount of time you have spent thinking about this event since it occurred. Do this using the following scales

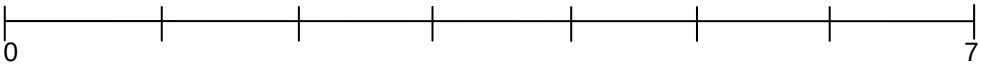
not important at all — very important



not distressing at all — very distressing



not thought about it at all — thought about it a great deal



Some events that you may want to consider are: an argument, a disappointing night out together, or a stressful event

	Importance	Distress Level	Time spent thinking about it
Event A ……..	☐	☐	☐
Event B ……..	☐	☐	☐
Event C ……..	☐	☐	☐

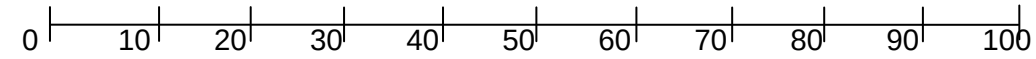
Appendix S

Rating Questionnaire, Study 5

Please answer the following questions. Use the scale provided, circling **ONE** number for each question. **Do not think on items too long. Simply note down your first thoughts.**

1. Please rate your **current mood**. That is, how you are feeling **right now**.

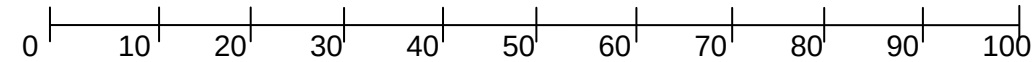
I feel very negative neutral I feel very positive



For the next four questions, please rate how you feel towards your **current** romantic partner, **at this very moment**.

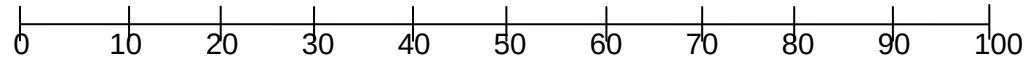
2. How close do you feel toward your romantic partner **right now**? (Note that the term "close" refers to psychological and emotional closeness)

Not close at all Extremely close



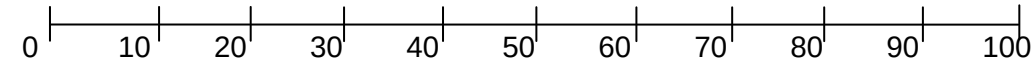
3. How frustrated do you feel with your romantic partner **right now**?

Not frustrated at all Very frustrated



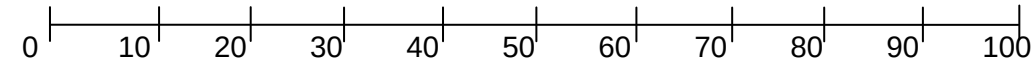
4. How supported do you feel by your romantic partner **right now**?

Not supported at all Very Supported



5. How supported do you think your romantic partner feels right now?

Not supported at all Very Supported



Appendix T

Debrief Sheet, Study 4 and 5

College of Science

Department of Psychology

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

The Couples Thought and Emotion Study
Debriefing Sheet

Thank you for taking part in this study.

The overall aim of this study was to compare the effect of co-ruminating with ones romantic partner with the effects of co-reflecting with ones romantic partner, and to see whether these effects changed depending on the topic discussed (positive or negative relationship events). In particular, we were interested in the effects of co-rumination and co-reflection on levels of emotion, feelings of closeness to ones partner, and feelings of support.

Co-rumination refers to a process where two people extensively discuss, revisit, and speculate about their problems together. Co-reflection, on the other hand, refers to a process of mutual contemplation on the events that have occurred and reflection on the knowledge one has gained. Friendship research tells us that talking about ones problems with a friend increases feelings of closeness to that friend. However, research also tells us that continuing to rehash this problem with a friend increases levels of negative emotion. Given the frequent occurrence of both positive and negative events over the course of a romantic relationship, understanding the effects of different discussion styles on the levels of emotion one experiences has important implications for helping to build happy romantic relationships.

We expect that co-rumination will be associated with greater levels of negative emotion, but also greater levels of closeness and support (as compared to co-reflection).To investigate this, we have asked participants to complete a number of different measures of

co-rumination, emotion and relationship satisfaction**.** We have also asked you to take part in discussing four events (two negative and two positive) with your partner. You were asked to discuss the events in a different way (co-rumination and co-reflection) so that the effects of each approach could be compared. You were asked to discuss both positive and negative events so that we could investigate whether the effects of co-rumination and co-reflection on emotion changes depending on the type of event discussed. Your videos will be coded to gather information on the levels of co-rumination and co-reflection present as you and your partner discussed each event. We will analyse all the information together from this study.

If you have any questions, queries or concerns regarding this study please email Johannah Betman at jeb95@uclive.ac.nz or call 3642987 extension 3086.
You may also contact my supervisor:
Dr. Janet Carter – janet.carter@canterbury.ac.nz, 364 2987 extension 8090

This study has received ethical approval from the Upper South B Regional Ethics Committee, ethics reference number URB10/08/030.

Appendix U

Coding Schedule, Study 5

Coding Schedule

The Couples Thought and Emotion Study 2010

Watch each five minute video segment through once. Having done this, watch each video as many times as required to assign a code to each of the following items.

Co-rumination

Co-rumination is defined as talking extensively about problems with a relationship partner. It is characterized by a) a large amount of time spent talking about problems, b) mutual encouragement of problem talk, c) rehashing problems, d) speculating about problems, and e) dwelling on negative affect (Rose, 2002).

You are asked to please code four aspects of co-rumination. These four aspects are described in further detail below. Each aspect is to be coded according to the degree couples engage in that particular type of talking throughout each discussion. In rating the presence of each aspect of co-rumination please use the following 5-point Likert scale:

1: Not at all / very little
2: A little
3: A moderate amount
4: A lot
5: Very much

1) Mutual encouragement of problem talk: One or both members of the dyad *keeps the problem talk going* instead of talking about other issues. One or both may also try to get the other to talk about the problem again after the topic has been switched.

For example: Alice: We have been talking about this forever! Oh well, it's okay.
Jacob: I know; it's important. So what happened with [the problem] yesterday?

2) Rehashing problems: One or both members of the dyad talks about the problems or parts of the problems over and over again.

For example: Daniel: I mean I know I've said this already, but she *stole* his wallet!!
Jane: Right. She stole it. And remember how she said she didn't do it?

3) Speculating about problems: One or both members of the dyad ponders the origins of the problem or parts of the problem, why people did what they did, what may happen as a result, etc.

For example: Jennifer: Why do you think he did that? He can't be that mean.
Sam: I don't know. I mean, maybe he was having a bad day?

4) Dwelling on negative affect: One or both members of the dyad focuses on the experience of negative emotions like feeling worried, nervous, irritated, sad, anxious, angry, depressed, low, scared, distressed, anguished, shameful, embarrassed, frustrated, etc. For example: Bill: It sucks man. It really sucks.
Sarah: Seriously. You must feel like crap.

5) General Co-rumination score
Once you have coded each of the four aspects of co-rumination above, please then assign each conversation a total co-rumination score. This score is to reflect your general sense of the degree to which each couple is co-ruminating during a given conversation. Again, please rated this according to the 5 point likert scale used above.

Co-reflection

Reflection involves both contemplating what has occurred in an attempt to overcome a problem, and thinking about ones feelings in an attempt to understand why they feel as they do. Co-reflection refers to the process of reflecting together with ones partner. Unlike the self focus that occurs as part of co-rumination, the introspection that occurs in co-reflection is solution focused and does not involve dwelling on the negative. Co-reflection is also driven by a curiosity to increase self knowledge so that one can learn and move forward (Treynor et al., 2003). The following instructions for coding co-reflection are based on Treynor et al.'s (2003) definition of co-reflection.

As with Co-rumination, you are asked to please code four aspects of co-rumination. These four aspects are described in further detail below. Each aspect is to be coded according to the degree couples engage in that particular type of talking throughout each discussion. In rating the presence of each aspect of co-reflection please use the following 5-point Likert scale:

1: Not at all / very little
2: A little
3: A moderate amount
4: A lot
5: Very much

1) Solution focused contemplation of event. One or both members of the dyad discusses the event in a manner in that increases their understanding of what happened

For example: Andy**:** You were angry
Cheryl: I had had a busy day and was upset because I was hungry and you were just sitting there waiting for me to do tea
Andy: I had had a stressful meeting and just needed some time out before

starting the cooking

2) Focused sharing of thoughts and feelings. One or both members of the dyad discuss their thoughts and feelings in an attempt to understand why the event made them feel as they did.

For example: Joan: I think I felt angry because I was annoyed at what had happened
Sam: I felt hurt because you were angry and I couldn't figure out why

3) Discussion around knowledge gained. One or both members of the dyad talk about what they have learnt as a result of the event

For example: Jacob: I now know how much you appreciate it when I bring you home a bunch
of flowers
Rebekah: Yeah I do like that

4) Contemplation of the bigger picture. One or both members of the dyad makes reference to where the event fits in the bigger picture of life.

For example: Steve: You know while we disagreed about that this week we don't disagree about it often
Riley: You know your right we don't

5) General Co-reflection Score
Once you have coded each of the four aspects of co-reflection above, please then assign each conversation a total co-reflection score. This score is to reflect your general sense of the degree to which each couple is co-reflecting during a given conversation. Again, please rated this according to the 5 point likert scale used above.

Self disclosure

For each conversation please also rate the degree of self disclosure for both males and females. Self disclosure refers to the sharing of personal thoughts and feelings. Please do this using the following five point likert scale.

1: Not at all / very little
2: A little
3: A moderate amount
4: A lot
5: Very much

Couple #: Conversation #:

Mutual encouragement of problem talk

1 2 3 4 5

Rehashing problems

1 2 3 4 5

Speculating about problems

1 2 3 4 5

Dwelling on negative affect

1 2 3 4 5

General Co rumination Score

1 2 3 4 5

1) Discussion around insights and knowledge gained. Also reference made to "bigger picture

1 2 3 4 5

2) Contemplation of possible solutions

1 2 3 4 5

3) Focused (non repetitive) sharing of feelings

1 2 3 4 5

4) Neutral, non evaluative tone of discussion

1 2 3 4 5

General Reflection Score

1 2 3 4 5

Self disclosure by female (shares how feeling with partner)

1 2 3 4 5

Self disclosure by male (shares how feeling with partner)

1 2 3 4 5

Appendix V

Coding Outcomes, Study 5

Variable		Discuss as Normal	Co-rumination Negative	Co-reflection Negative	Co-rumination Positive	Co-reflection Positive
Co-rumination	Mutual encouragement	3.44	3.77	3.69	4.51	4.30
	Rehashing	1.98	3.38	3.09	3.62	3.06
	Speculating	2.85	4.91	3.24	4.89	3.49
	Dwelling	0.64	3.98	0.77	3.48	1.74
	Co-rumination Total	2.02	3.81	2.49	3.76	3.01
	Average of Co-rumination scores	2.19	3.97	2.65	4.05	3.12
Co-reflection	Neutral	2.49	2.60	3.51	2.19	3.40
	Solutions	1.51	1.71	4.89	1.04	4.57
	Insights	3.34	3.72	4.45	3.16	3.72
	Non-repetitive	1.45	1.87	1.57	1.58	1.60
	Co-reflection Total	2.17	2.54	3.67	2.06	3.39
	Average of Co-reflection scores	2.19	2.48	3.62	2.00	3.33
Self-Disclosure	Self Disclosure, Female	3.25	4.79	4.18	4.63	4.98
	Self Disclosure, Male	3.04	3.73	4.00	3.89	4.00

Note. Scores are anchored 1(*Not at all/very little*) to 5 (*Very much*).